AMROTEC®

X-1

1.5 Pocket Currency Discriminator

Service Manual

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Chapter 1 Introduction

1.1 About X-1 Service Manual

This manual is for the maintenance of X-1 and it includes the disassembly process, spare part replacement, basic inspection and repair.

1.2 Important Safety Precaution

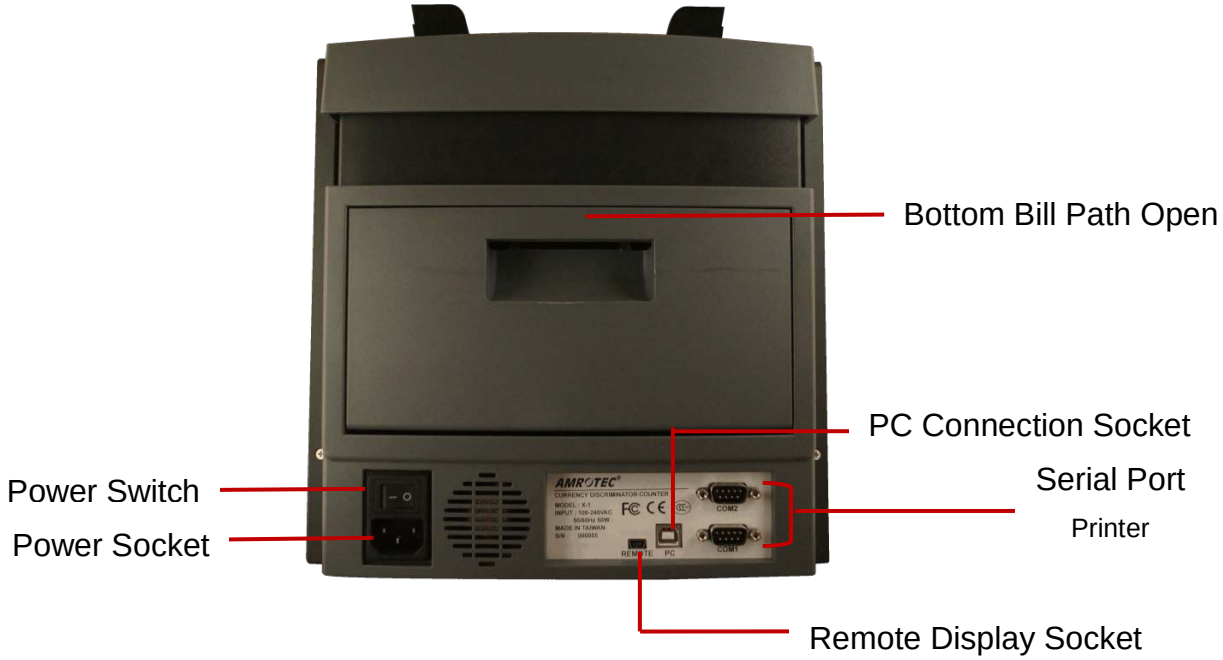
- X-1 is exclusively for indoor usages only, please do not use or install it outdoor.
- Please check the adaptor and power cord periodically to protect from any damages. The power source is between AC 90V~240V, 50/60 Hz.
- Keep X-1 away from magnets, activated cellular phones, electrical appliances, or speakers within 13cm / 5 inches.
- Please disconnect power adaptor and remove batteries when the machine left unused for a long time.
- X-1 is designed for notes processing. Please process banknotes ought to be verified in the four orientations (“Head Up-Right”, “Head Reversed”, “Tail Up-Right” or “Tail Reversed”).

1.3 Abbreviations and Acronyms

IR	Infrared
MB	Megabyte
MG	Magnetic
PC	Personal Computer
USB	Universal Serial Bus

Chapter 2 X-1 Outline

2.1 X-1 At A Glance



2.2 Specification

2.2.1 Functional and Mechanical Specification

Sensors:	CIS, IR, MG
Denomination Detection:	Contact Image Sensor
Dual User Operation:	Yes
Available Currencies	USD (std) and up to 5 additional currencies
Countable Note Size:	60 X 85 X 0.08mm ~ 100 X 190 X 0.12mm
Hopper Capacity:	500 notes (circulated notes)
Stacker Capacity:	250 notes (circulated notes)
Reject Pocket Capacity:	Max. 15 notes (circulated notes)
Display:	3.5 Inch color TFT
Display Language:	English or Customized
Feed System:	Roller friction system
Piece Count Speed:	750 / 850 / 1000 notes/min. (selectable))
Denomination Count Speed:	Up to 750notes/min. (fixed)
Serial Number Count Speed:	N/A in X-1 series
Dimensions (mm):	330(W) X 330 (D) X 350 (H)
Weight:	Approx. 15Kg
Operating Temperature Range:	
Humidity:	
Options:	Remote Display / Thermal Printer

2.2.2 Electrical Specification

Power Supply:	100-240V AC, 50/60Hz
Power Consumption:	Max. 150W

2.2.3 Interface Specification

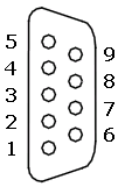
2.2.3.1 Thermal Printer (RS-232)

(A) Communication Conditions

Item		Specification
Standard:		EIA RS-232C
Baud Rate:		9600bps (Dot) ,38400bps ,115200bps (Thermal)
Synchronous Method:		Asynchronous
Data Format:	Start	1 bit
	Data	8 bits
	Parity	None
	Stop	1 bit
Connector:		D-sub 9pin (male)
Cable length:		15m max

(B) Thermal - Interface Connector - Equipment Side Connector

Pin NO.	Signal	Direction
1	——	——
2	——	——
3	TXD	X-1→thermal Printer
4	——	——
5	GND	——
4	——	——
7	——	——
8	——	——
9	——	——



(C) Dot Matrix - Interface Connector

Pin out on the dot matrix cable are:

25 pin	**9 pin**
2	2
3	3
7	5
6	4
20	6

2.2.3.2 Remote Display

(A) Communication Conditions

Item		Specification
Standard:		UART
Baud Rate:		115200bps
Synchronous Method:		Asynchronous
Data Format:	Start	1 bit
	Data	8 bits
	Parity	None
	Stop	1 bit
Connector:		Mini USB 5 pins (female)
Cable length:		1.5m max

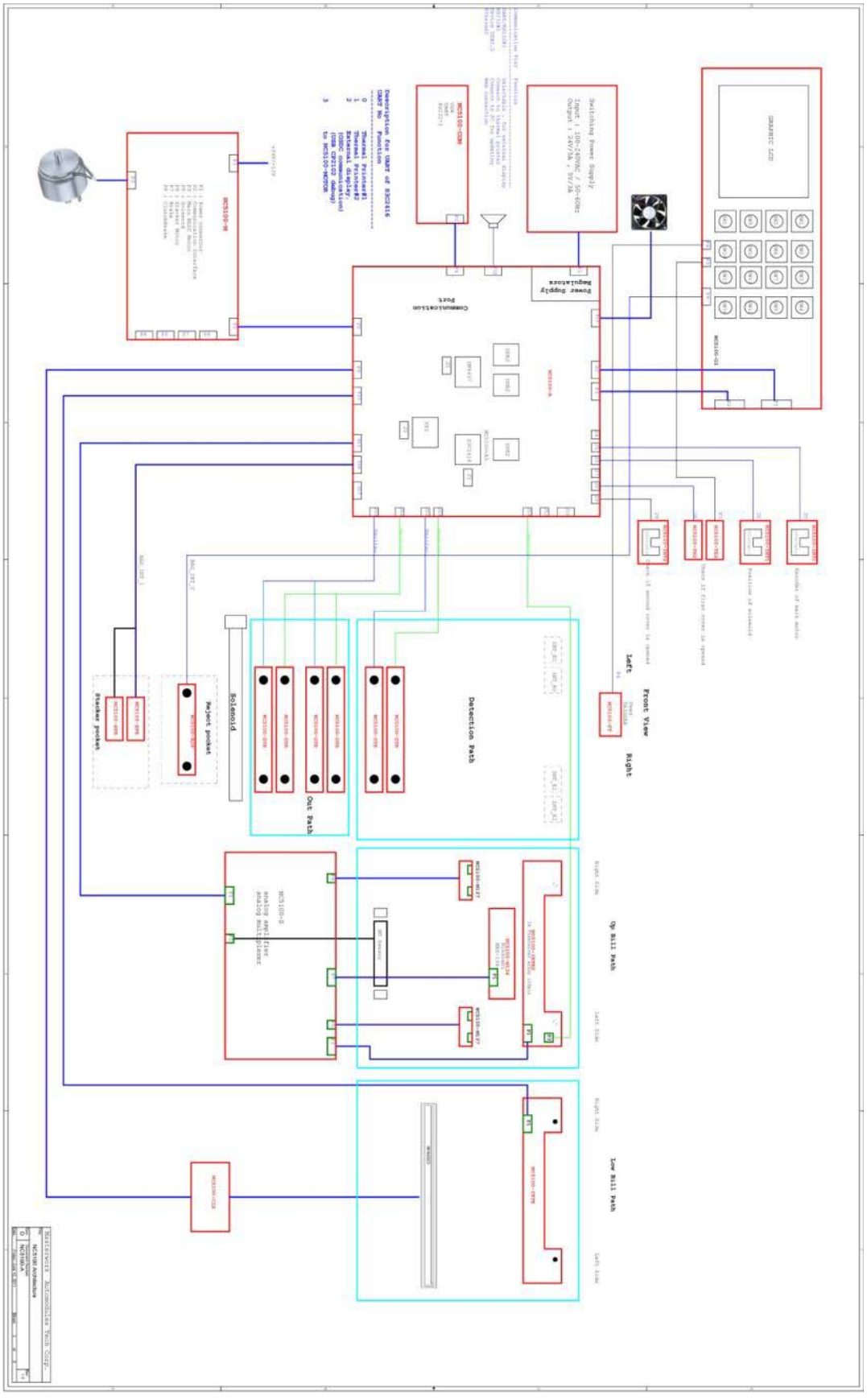
(B) Interface Connector - Equipment Side Connector

Pin NO.	Signal	Direction
1	VCC	——
2	VCC	——
3	RXD	——
4	TXD	X-1 →Remote display
5	GND	——

2.2.3.4 PC

Item	Specification
Data Communication Port	USB

2.3 System Overview



Chapter 3 Maintenance

3.1 Cleaning the Cover of X-1

❶ Prepare a mixture of a gentle kitchen-use detergent (one that does not contain abrasive powder or strong chemicals such as acid or alkaline.) Use 5 CUP water to 1 CUP detergent.
❷ Absorb the diluted detergent into a sponge.
❸ Squeeze excess liquid from the sponge.
❹ Wipe the cover with the sponge, use a circular motion and be careful not to let any excess liquid drips into the interior of the device.
❺ Wipe the surface to remove the detergent.
❻ Rinse the sponge with clean running water.
❼ Wipe the over with the clean sponge.
❽ Wipe the surface again with a dry, soft lint-free cloth.
❾ Wait for the surface to dry completely and remove any fibers.

3.2 Cleaning the bill path of X-1

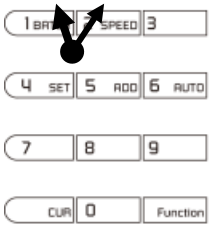
❶ Open the bill path.
❷ Gently wipe or dust the bill path with a brush or a dry, soft lint-free cloth.
❸ If stains remain, moisten a soft lint-free cloth with water or a 50-50 mixture of isopropyl alcohol and water that does not contain impurities.
❹ Wring out as much of the liquid as you can.
❺ Wipe the bill path and the sensor surface again; do not let any liquid drip into the device.
❻ Repeat 1-5 to clean the conveyer path.

*NOTE: Avoid spraying cleaner directly on the device, and be sure to dry the bill path before closing it.

Chapter 4 Maintenance Mode

Maintenance Mode is for testing and maintaining the X-1 device only. Please follow the instructions below when operating under this mode to prevent damage to the device.

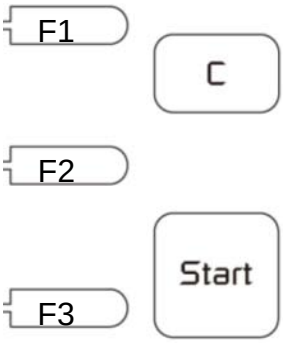
How to enter Maintenance mode:



1. While Turning on the device,
2. Press and hold the "1 BATCH" and "2 SPEED" keys together at the initializing stage. A password screen will appear on the display.

Enter Password: [003888]

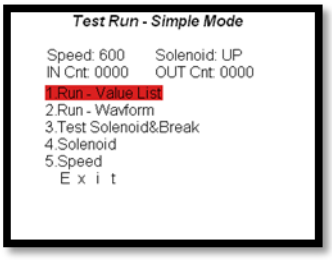
3. The device enters into Maintenance mode.



4. After entering the Maintenance mode, use the following keys to operate:
   - F1: Move Up.
   - F2: Move Down.
   - Start: Toggle between options and/or confirm a selection.
   - C: Go back to upper layer/Stop.

4.1 Test Run – Simple Mode

To test the feeding process with the four sets of IR trigger sensors in the bill path.



4.1.1 Run – Value List

To check the gap adjustment by using the retrieved values.

5.Speed

1. Choose a desired speed for testing (CNT mode).

4.Solenoid

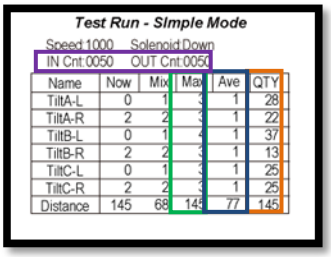
2. Change the solenoid to “Down” position.

1.Run - Value List

3. Start “Run – Value List” by pressing the “Start” after selecting on the item.

4. Place a bundle of 50 pcs test notes (Denomination: 1USD) on the hopper and pull the hopper guide to fix the size of test note. The machine starts running once it detects notes on the hopper.

Note: The distance of two sides from hopper to banknote shall be around 3mm to 5 mm.

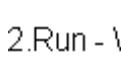

Test Run - Simple Mode
Speed:1000 Solenoid:Down
IN Cnt:0050 OUT Cnt:0050
Name Now Mix Max Ave QTY
TiltA-L 0 1 3 1 28
TiltA-R 2 2 3 1 22
TiltB-L 0 1 4 1 37
TiltB-R 2 2 3 1 13
TiltC-L 0 1 3 1 25
TiltC-R 2 2 3 1 25
Distance 145 68 145 77 145

5. Once notes proceed, sensors retrieve value and they are showed on the list.
   - MAX: Value of Tilt shall not over 4.
   - AVE: Value of Tilt shall not over 2.
   - QTY: Value of L shall not less than 10.
   - Value of IN Cnt and OUT Cnt shall be 50.

*Note: Repeat the same process FIVE times and the result should be similar. If two or more test results are not under acceptable range, please adjust the gap and test.

4.1.2 Run – Wavform

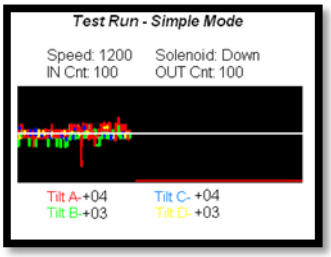
To check the gap adjustment by using the graphic wave formed by the retrieved value.



1. Enter “Run – Wavform” by press the “Start” after selecting on the item.

2. Place a bundle of 50 pcs test notes (Denomination: 1USD) on the hopper and pull the hopper guide to fix the size of test note. The machine starts running once it detects notes on the hopper.

Note: The distance of two sides from hopper to banknote shall be around 3mm to 5 mm.



3. The wave will be drawn around the white line

*Note: If a majority of drawing is not on the white line, it is necessary to adjust the gap and test again.

4. Press the “Move down” key to switch to next page and see the wave form of distance.

*Note: If the drawing shows big waves and pops up and down, it is necessary to adjust the gap and test again.

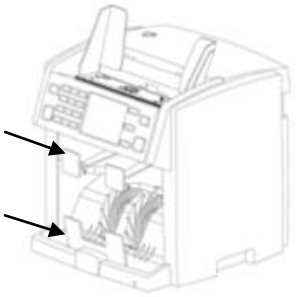
4.1.3 Test Solenoid & Brake

To test the functionality of solenoid and brake (Manually start).

Place a bundle of 50 pcs (Denomination: 1USD) test notes on the hopper and pull the hopper guide to fix the size of test note. The machine starts running once it detects notes on the hopper.

Note: The distance of two sides from hopper to the edge of banknote shall be around 3mm to 5 mm.

Press the “Start” to activate the solenoid & Brake function.

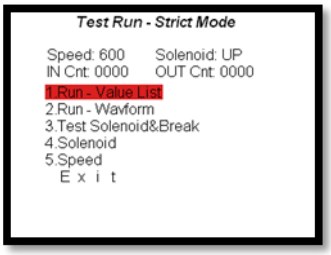


The machine counts and the solenoid toggles between reject pocket and stacker. Check the two pockets to make sure that banknote are separated equally in both pockets.

*Note: If the Solenoid &Break doesn't function well, please contact your local service organization.

4.2 Test Run – Strict Mode

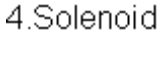
To test the feeding process with 128 pairs IR array and the four sets of IR trigger sensors in the bill path.



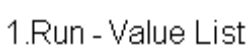
4.2.1 Run – Value List

To check the gap adjustment by using the retrieved values.

1. Choose a desired speed for testing.



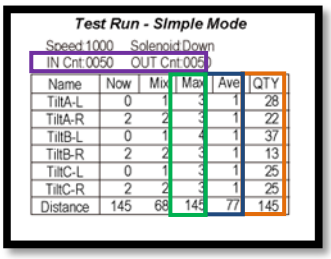
2. Change the solenoid to "Down" position.



3. Start "Run – Value List" by pressing the "Start" after selecting on the item.

4. Place a bundle of 50 pcs test notes (Denomination: 1USD) on the hopper and pull the hopper guide to fix the size of test note. The machine starts running once it detects notes on the hopper.

Note: The distance of two sides from hopper to the edge of banknote shall be around 3mm to 5 mm.

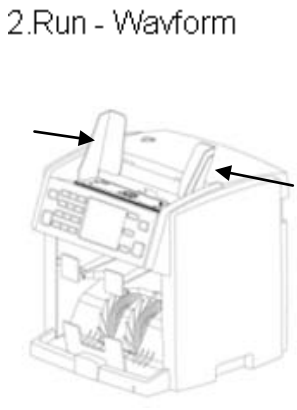

Test Run - Simple Mode
Speed:1000 Solenoid:Down
IN Cnt:0050 OUT Cnt:0050
Name Now Min Max Ave QTY
TiltA-L 0 1 3 1 28
TiltA-R 2 2 3 1 22
TiltB-L 0 1 4 1 37
TiltB-R 2 2 3 1 13
TiltC-L 0 1 3 1 25
TiltC-R 2 2 3 1 25
Distance 145 68 145 77 145

5. Once notes proceed, sensors retrieve value and they are showed on the list.
   - MAX: Value of Tilt shall not over 4.
   - AVE: Value of Tilt shall not over 2.
   - QTY: Value of L shall not less than 10.
   - Value of IN Cnt and OUT Cnt shall be 50.

*Note: Repeat the same process FIVE times and the result should be similar. If two or more test results are not under acceptable range, please adjust the gap and test.

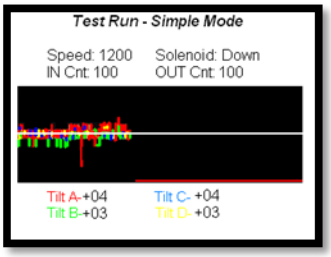
4.2.2 Run – Wavform

To check the gap adjustment by using the graphic wave formed by the retrieved value.



1. Enter “Run – Wavform” by press the “Start” after selecting on the item.

2. Place a bundle of 50 pcs test notes (Denomination: 1USD) on the hopper and pull the hopper guide to fix the size of test note. The machine starts running once it detects notes on the hopper.



3. The wave will be drawn around the white line

*Note: If a majority of drawing is not on the white line, it is necessary to adjust the gap and test again.

4. Press the “Down” key to switch to next page and see the wave form of distance.

*Note: If the drawing shows big waves and pops up and down, it is necessary to adjust the gap and test again.

4.2.3 Test Solenoid & Brake

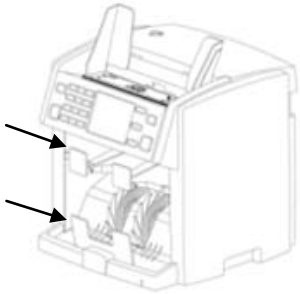
To test the functionality of solenoid and brake by using 128 pairs IR array (Manually start)

1. Place a bundle of 50 pcs test notes (Denomination: 1USD) on the hopper and pull the hopper guide to fix the size of test note. The machine starts running once it detects notes on the hopper.

Note: The distance of two sides from hopper to the edge of banknote shall be around 3mm to 5 mm.

3.Test Solenoid&Brake

2. Press the "Start" to activate the solenoid & Brake function.

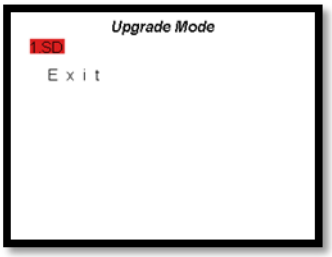


The machine counts and the solenoid toggles between reject pocket and stacker. Check the two pockets to make sure that banknote are separated equally in both pockets.

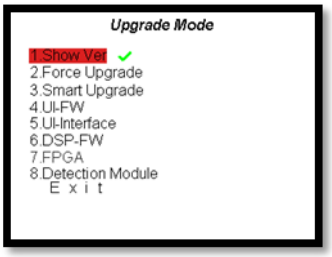
*Note: If the Solenoid & Break doesn't function well, please contact your local service organization.

4.3 Upgrade Mode

Using supported devices to upgrade X-1.



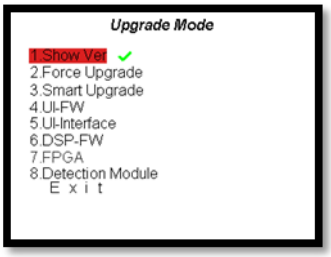
1. Insert SD card (NOT AVAILABLE WITH US MODEL) with upgrade firmware into the device.
2. Highlight the "SD" and press "Start" to enter the upgrade mode.



3. Once SD card is detected, a green mark ✔ shows next to the "Show Ver" option.

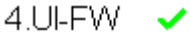
4.3.1 SD Upgrade **(not available with USA model)**

To upgrade the device with a SD card.



1. Once a SD card is detected, a green mark ✔ is shown next to “Show Ver” and the device is available to be upgraded via SD card. If not, a red cross is shown ✘ instead.

2. Highlight the desired option and press “Start” to upgrade.
3. A mark will be shown next to the upgraded module. The following are the definitions of the status.



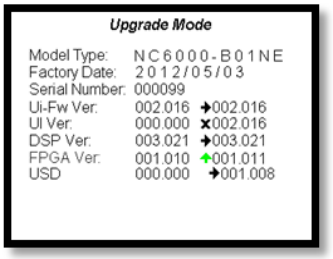
: In the process of upgrading module.

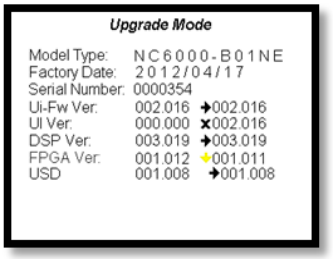
: The module has been upgraded correctly.

: Upgrading process has failed.

4.3.1.1 Show Ver

To check the available and currency firmware version.





1. The current module version and the available version on the SD card can be checked here.
2. The following are the definitions of different signs.

: A new version is found.

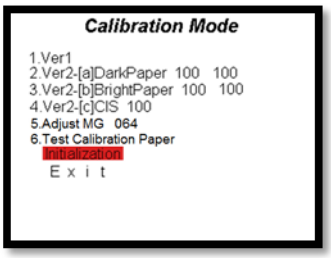
✘: Firmware data cannot be found.

: The same firmware as current version has been detected.

: The available version is older than current firmware detected.

4.4 Calibration mode

Before calibrating sensors.



1. Highlight the option and press "Start"
2. Use "F1" and "F2" key to adjust the dimension value of calibration paper.

Note: Dimension value is stated on each calibraiton paper.

4.4.1 Calibrate sensors

1.Ver1 This function does not exist in X-1 model.

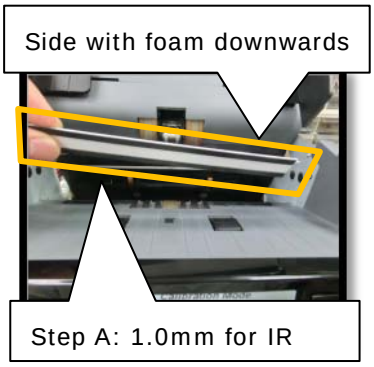
To calibrate the IR image.

Step A: Transmission Calibration.

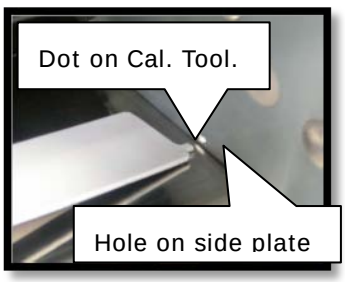
2.Ver2-[a]DarkPaper

1. Select on the second version of calibration process A.

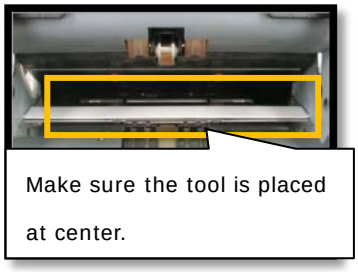
2. Check the value on the calibration tool A (1.0 mm for IR) and remember the two values (100 / 100).



3. Open the lid and insert the Calibration tool A (1.0mm for IR), side with foam downwards.



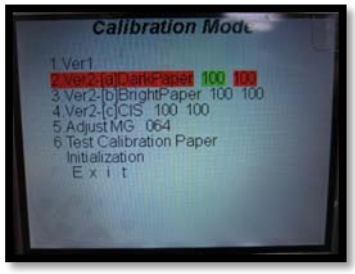
4. Insert the dots on calibration tool to the holes on side plates.



5. Adjust the position of the Cal tool to the center part of the bill path.

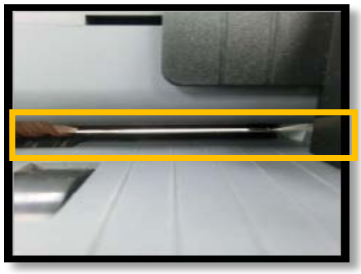
6. Close the Lid, check if the Cal tool is placed properly, no bending.

2.Ver2-[a]DarkPaper

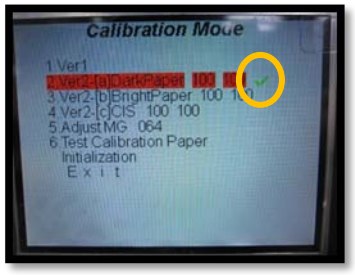


7. Press "Start" on the option "2.Ver2-[a] Dark Paper".
8. Use F1/F2 to insert the first value on the calibration tool A and press "Start".

9. The highlighting shall move to next space and insert the second value on the calibration tool A and press "Start"
10. After the screen shows a black arrow beside the dimension value, wait for about 5 seconds.



11. IRTE lights up during the calibration.

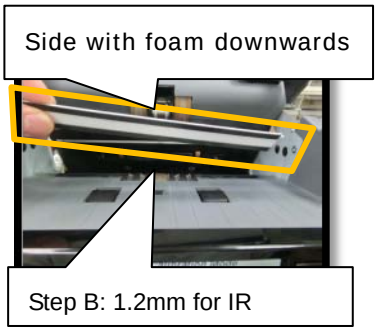


12. Once a green mark appears on the screen, the calibration Step A is completed.

Step B: Transmission Calibration

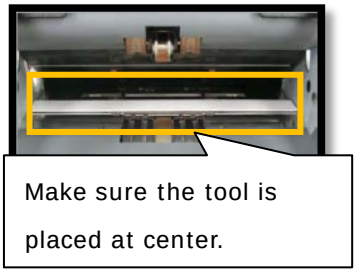
1. Select on the second version of calibration process A.

2. Check the value on the calibration tool B (1.2 mm for IR) and remember the two values (100 / 100).

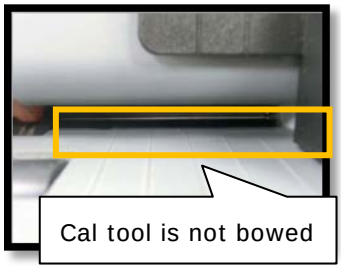


3. Open lid and remove calibration tool A (1.0 mm For IR).

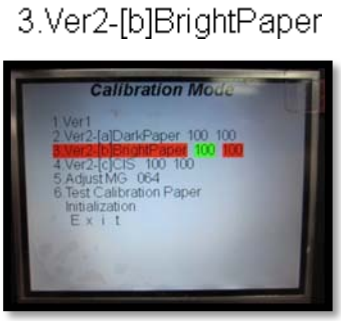
4. Insert the Calibration tool B (1.2 mm for IR), side with foam downwards.



5. Adjust the position of the Cal tool to the center part of the bill path.

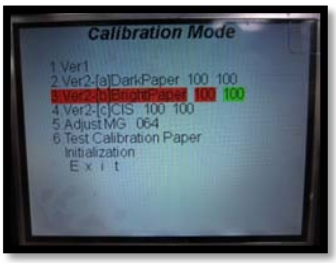


6. Close the Lid, check if the Cal tool is placed properly, no bending.



7. Press "Start" on the option "3.Ver2-[b] Bright Paper".

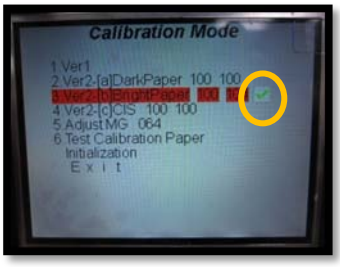
8. Use F1/F2 to insert the first value on the calibration tool B and press "Start".



9. The highlighting shall move to next space and insert the second value on the calibration tool B and press "Start"

10. After the screen shows a black arrow beside the dimension value, wait for about 5 seconds.

11. IRTE lights up during the calibration.



12. Once a green mark appears on the screen, the calibration Step B is completed.

4.4.2 Adjust MG

To adjust the retrieved value of magnetic sensor.

5.Adjust MG

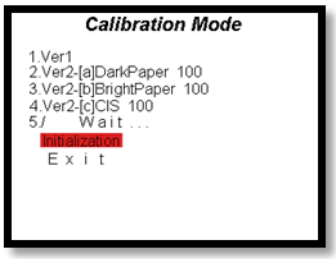
1. Highlight the option and press "Start".
2. Adjust the value of magnetic sensor by pressing the keys "F1" and "F2". (from 000 to 128)

Note: To adjust the MG value, please contact MA.

4.4.3 Initialization

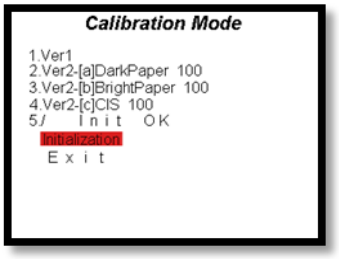
Initializing the sensor.

Initialization



*Note: Initialization shall only be executed with indication from MA.

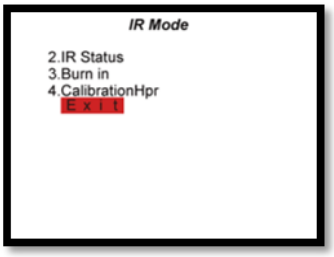
1. Press the "Start" key for the initialization and the display shows "Wait…". Do not touch any button and wait until the process is finished.



2. Once the initialization process is done, the display shows “Init OK”.
3. Calibrate the device immediately.

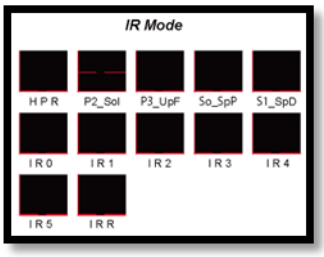
4.5 IR Mode

To check the status of IR sensors and triggers.

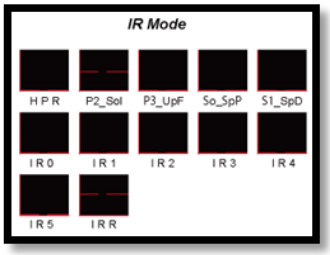


4.5.1 IR Status

To see the IR triggers’ reactions.



1. In normal status, only the channel P2-Sol shows reaction curve.

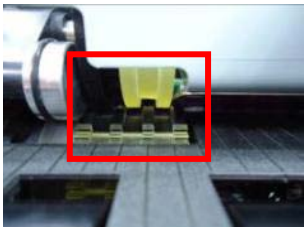


2. Once a IR sensor is covered, the curve on the display reacts. Users may use their hand or supporting items to cover sensors and test the status of IR sensors.
3. The following are the actions to get reaction from IR sensors.
   - HPR: Cover the trigger.
   - P3-UpF: Reject pocket is full
   - S0-SpP: Check notes in reject pocket.
   - S1-SpD: Stacker is full.
   - IR0-IR2, IRs: Sensors in top bill path. When top bill path is opened, there are reactions on the 4 channels.

- IR4-IR5: Open the cover lid, there are reactions on the 2 channels.
- IRR: Cover the trigger sensor of jam in reject pocket. (Refer to the pictures on the left side)

4.5.3 Burn In

To burn in the 128 set IR array. [Factory used only].



1. Highlight the option and press "Start" to enter the burn in mode.
2. Press "Start" to burn in IR array which will keep the sensor in a stable situation.
3. Use "F1" and "F2" key to set the burn in time, and press "Start" to activate. IR array lights up while burn in is under processing.
4. Check the rollers and ensure each cog gears smoothly.
5. Press "C" to stop the burn in function and press "C" again to go back to the upper layer.

4.5.4 Calibration of Hopper Sensor

To calibrate the IR hopper sensor.

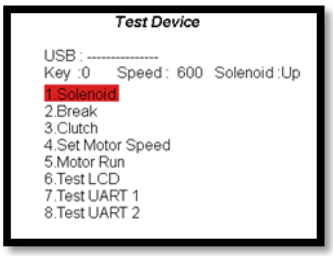
4.Calibration Hpr

1. Highlight the option and press "Start" to enter the burn in mode.
2. Press "Start" to calibrate the hopper sensor.
3. Once a green mark appears beside the option, the calibration is completed successfully.
4. Highlight the option "Exit" and press "Start" to go back to the upper layer.

Note: In order to calibrate hopper sensor, the status of Hpr Ttrigger Detection Mode(Under the opiton Setup DeviceParameters) shall be in Ver2. To setup the Hpr Detection Mode, refer to page 32.

4.6 Test Device

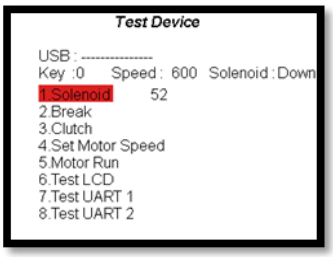
To test the functionalities of all the parts and to make sure the stability of machine.



4.6.1 Solenoid

To test the reaction time of solenoid.

1.Solenoid

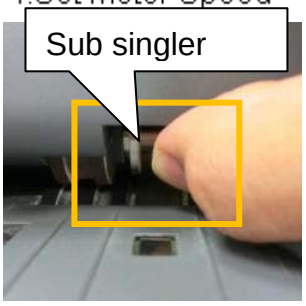


1. Highlight the option and press "Start" key.
2. Solenoid toggles between UP and DOWN to stacker pocket and the display shows a speed.

4.6.2 Machine Running Status

Testing the machine for basic running status under different speeds.

4.Set Motor Speed



2.Motor A

3.Motor B

5.Motor Run

5.Motor Stop

5.Motor Stop

5.Motor Run 34657

1. Set a preferred speed for testing the device.
2. Different speed can be set by press "Start" key: 600, 650, 700, 750, 800, 1000, 1200, Min and Max.

*Raise the "sub singler roller" to segregate the sound of vibration when the motor is running.

3. Highlight the option and press "Start" key.
4. Check if the rollers run well to test the functionality of front motor.
5. Highlight the option and press "Start" key.
6. Check the sound of device to test the functionality of back motor.
7. Highlight the option "Motor Run" and press "Start" key.
8. Motor starts running.

*Note: The option "Motor Run" changes to "Motor Stop".

9. Once confirming all works well, Highlight the option "Motor Stop" and press "Start" key.
10. A number of Encoder is showed on the right side of the "Motor Run"
11. Switch motor speed and repeat the test process with each speed.
(600→650→700→800→1000→1200→Min→Max→600)

*If the motors run with strange noise during the test, please contact your local service organization.

4.6.3 Test LCD

Testing the functionality of LCD display.

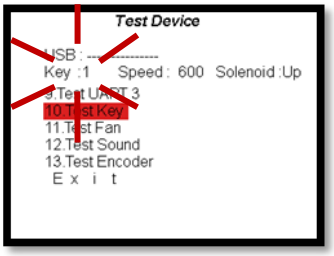
6.Test LCD

1. Highlight the option and press "Start" key.
2. The display shows RED, GREEN and BLUE continually, then it goes back to the test mode.

4.6.4 Test Key

Testing the functionality of each key.

10.TestKey



1. Press a key, the key number shows on the top left side of the screen.
2. When pressing different key, a reaction number shows on the display.

4.6.11 Test Fan

Testing the functionality of fan.

11.Test Fan

1. Highlight the option and press "Start" key.
2. The fan starts running. Place your hand on the back side of the device to feel if the fan works properly.
3. Press "Start" key again to stop it.

4.6.12 Test Sound

Testing the functionality of sound.

12.Test Sound

1. Highlight the option and press "Start" key. A testing sound can be heard.

4.6.13 Test Encoder

Testing the functionality of encoder.

13.Test Encoder

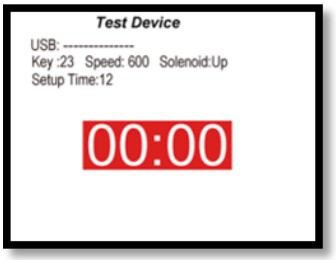
1. Highlight the option and press "Start" key. The motor starts running for a certain time.

13.Test Encoder 6864

2. A number of Encoder is shown on the left side of the option. The shown number of encoder during every test should be similar.

Burn In

To burn in the entire device. [Factory used only].



1. Highlight the option and press "Start" to enter the burn in mode.
2. Press "Start" to burn in the entire device (Motors, rollers.etc) which will keep the functionalities of machine in a stable situation.
3. Use "F1" and "F2" key to set the burn in time, and press "Start" to activate. Motors and rollers keep running while burn in is under processing.
4. Press "C" to stop the burn in function and press "C" again to go back to the upper layer.

4.6.15 Test SD

Test the functionality of SD interface.

15.Test SD

Turn to the back side of the device and insert the SD card.

1. Highlight the "Test SD" option and press "Start".

- The following are the definitions of different

numbers.

0: SD card is not inserted.

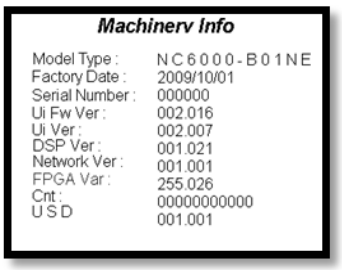
1: SD card is detected.

2: SD card is not detected well.

* In case of 2, Please check if the SD card is completely inserted.

4.7 Machinery Info

To look over the date of production, serial number and firmware version on the machine.



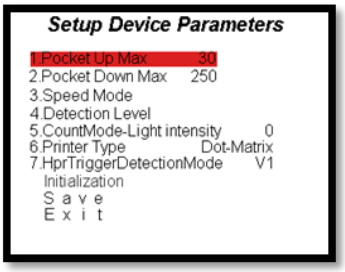
1. Use the “F1” and “F2” key to highlight “Machinery Info” under the main menu, and press “Start” for confirming selection.
2. All the versions information of firmware and detection is showed on the display.

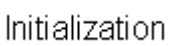
*Note: If currency list isn’t shown completely on the display, please press “Down” key to move to next page.

3. Press “F2” to see the completed currency version.
4. Press “C” to go back to upper layer.

4.8 Setup Device Parameters

To change the machine setting parameters.





1. Use the “F1” and “F2” key to highlight the option and press the “Start” to toggle between options.
2. After modifying the setting, highlight SAVE and press “Start” to confirm setting. Once the display shows “SAVE OK”, the modification is saved.
3. To go back to factory default setting, highlight the initialization and press “Start”.

*Note: It's suggested to use default setting on the device.

4.8.1 Capacity of pockets

To change the default capacity of pockets.

1.Pocket Up Max

(Reject Pocket)

1. To change the maximum capacity of banknote for reject pocket.
   - Options: 15 (fixed for USA model)

2.Pocket Down Max

(Main Stacker Pocket)

2. To change the maximum capacity of banknote for stacker.
   - Options: 50, 100, 150, 200, 250

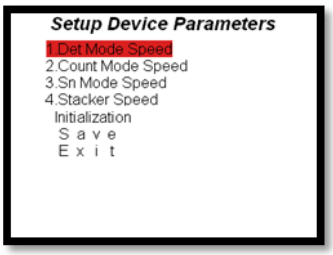
*Factory Default Setting:

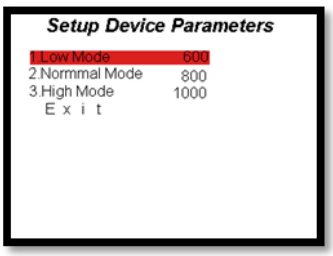
-Pocket Up (reject pocket): 15

-Pocket Down (stacker): 200

4.8.2 Speed mode

To change the setting of speed (COUNT mode only).





1. Highlight the desired speed mode and press "Start" to change the low, normal and high mode speed settings.
   - Options: 600, 800, 1000
2. Press "Save" to keep the change of setting and press "Exit" to go back to the upper layer.

*Factory Default Setting for Detection mode:

- FIXED (about 750 notes per min)

*Factory Default Setting for Count mode:

- low 600, normal 1000, high 1200.

Detection Level

5.CountMode - Light intensity

1. Highlight the “Count Mode-Light intensity” and change the level of intensity 0(low) to 3(high) in count mode by pressing “Start”.

Note: It’s suggested to use default setting on the device. Value of initialization should be 0.

4.8.5 Count Mode Intensity

5.CountMode - Light intensity

This function does not exist in X-1 Model.

Printer Type

Set up the printer type

6.Printer Type

1. Highlight the “Printer Type” and change the printer type by pressing “Start”.

Note: Be aware which type of printer is connected to the device before changing the setting.

Hpr Trigger Detection Mode

Set up the Detection Mode to enable the Calibration Hpr function in IR Mode

7.Hpr Trigger Detection Mode

1. Highlight the option and change the detection mode version by pressing “Start”.

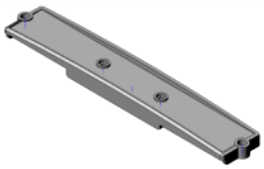
Note: Calibration Hpr function can only be operated in Hpr Trigger Detection Mode V2.

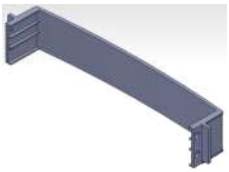
Chapter 5 X-1 part list and Disassembly

5.1 Tool preparation

	Screwdriver (+)
	Screwdriver (-)
	Long Nose Pliers
	7 mm Wrench
	3 mm Hex Key
	1.5 mm Hex Key

5.2 Housing

No	Part Name	Accessory Code	Picture	Q'ty
1	Top cover-ONE	3PP02100130041		1
	Paper-Guide (Holder)	3PP52500100170		1
	Paper-Guide-L	3GE40008171010		1
	Paper-Guide-R	3GE40008171020		1
	Gear-14T	3GE00814261100		1
	Rack BK	3NC90800120010		1

	Top cover-TWO	3PP02100130021		1
2	Banknote guide- L	3PP92110100010		1
	Banknote guide- R	3PP92110100020		1
3	Side Panel L	3PP32100040060		1
4	Side Panel R	3PP42100040060		1
5	Back Cover	3PP12100040010		1
6	Lid Back-Frame	3PP22100130010		1

5.2.1 Side Panel Left and Right

1. Prepare the machine and all the necessary tools.

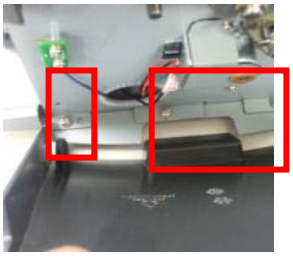
2. Turn the machine to rear side and loosen the two screws (M3x5-Countersunk) on right hand.

3. Turn the machine to the front side and loosen the screw (Ø3×8-round head) on the stacker.

4. Open the upper bill path and loosen the screw (Ø3×8-countersunk) on the right side.

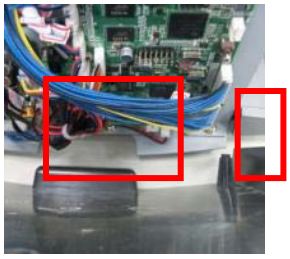
5. Disassemble the Side Panel-R from the machine.

*Note: When assembling the side cover, please make sure the plastic cover and metal plate fitted to each other.

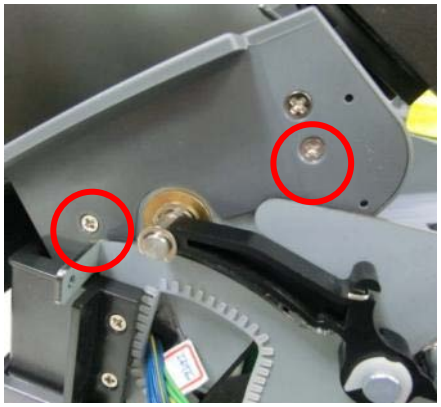


6. Repeat the steps 1 to 5 to dismount the Side Panel-L.

*Note: Please notice the same as above when assebling the side panel-L.



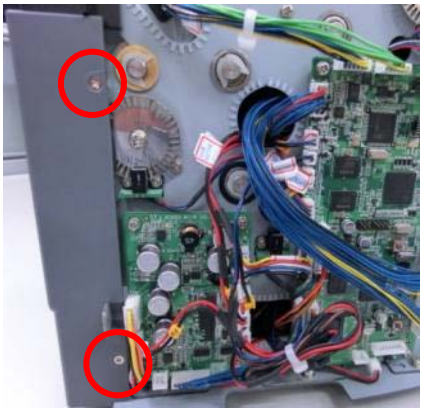
5.2.2 Top Cover-ONE and TWO



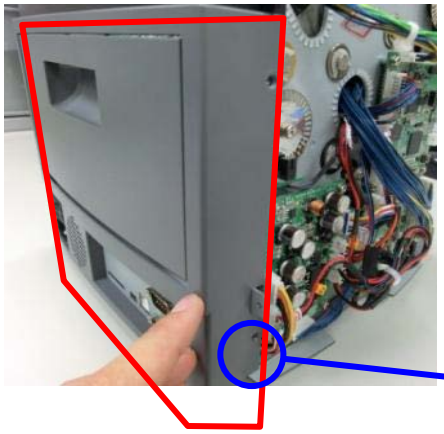
1. Loosen the two screws (M3x5-Countersunk) on the right side of top cover.
2. Loosen the two screws (M3x5-Countersunk) on the left side of top cover.

3. Disassemble top cover ONE and TWO from the machine.

5.2.3 Lid Back-Frame

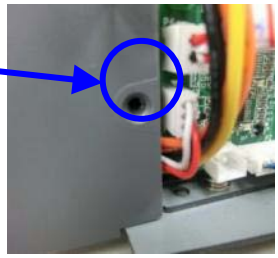


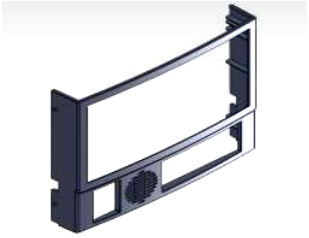
1. Loosen the two screws (M3x5-Countersunk) on the Lid Back-Frame of right sides.



2. Loosen the other two screws (M3x5-Countersunk) on the left side.

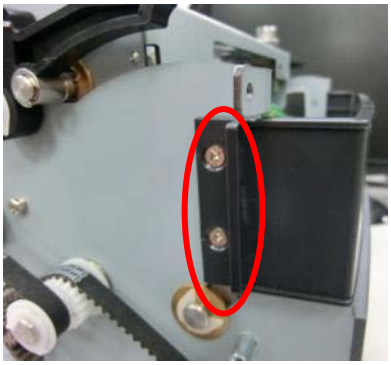
*Note: When assembling the Lid Back-Frame, please organize the cable of motor board to prevent damage on the cable.



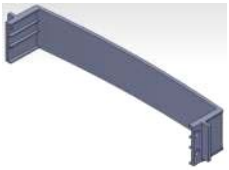


3. Disassemble Lid Back-Frame from the machine.

5.2.4 Back cover

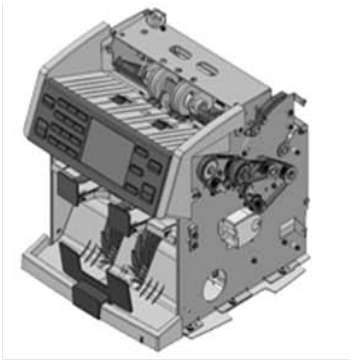


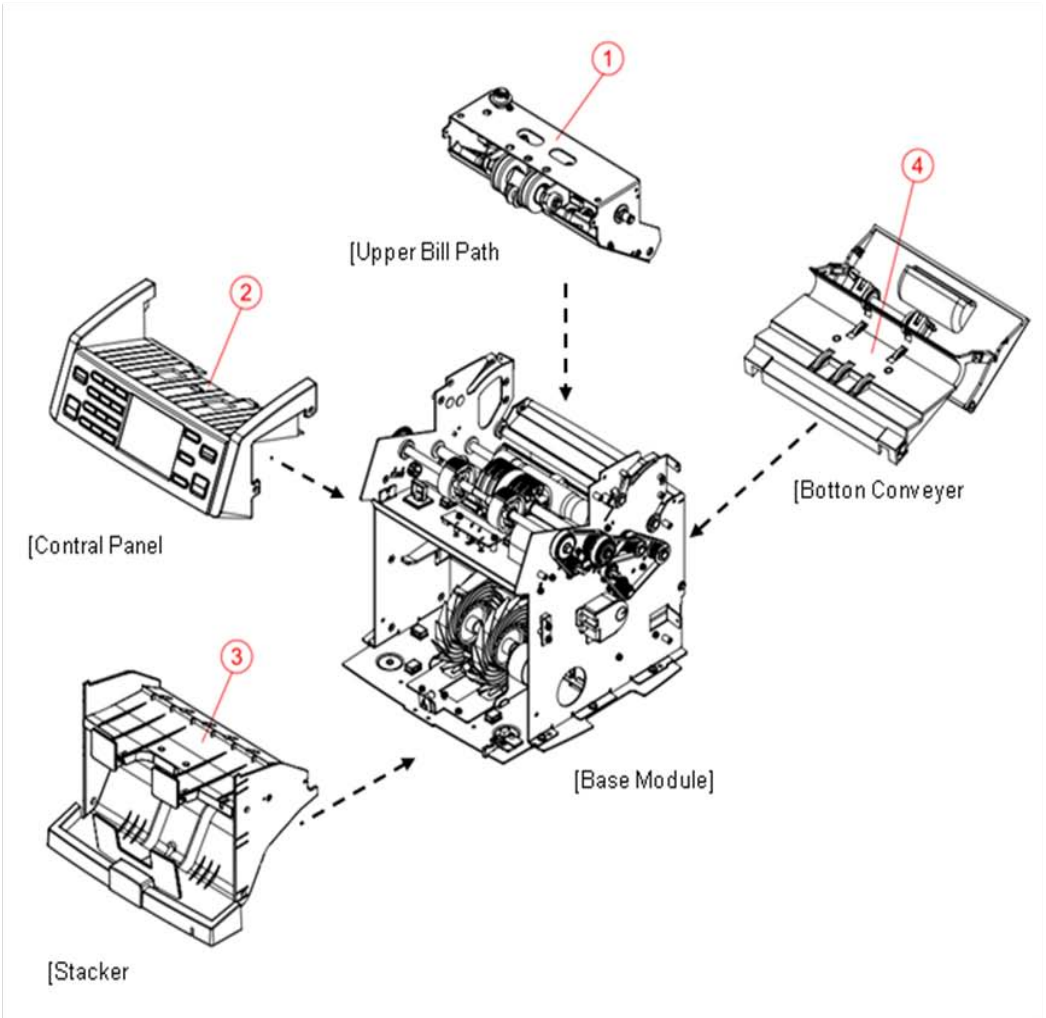
1. Loosen the screws (M3x5-Countersunk) on the both sides of back cover.



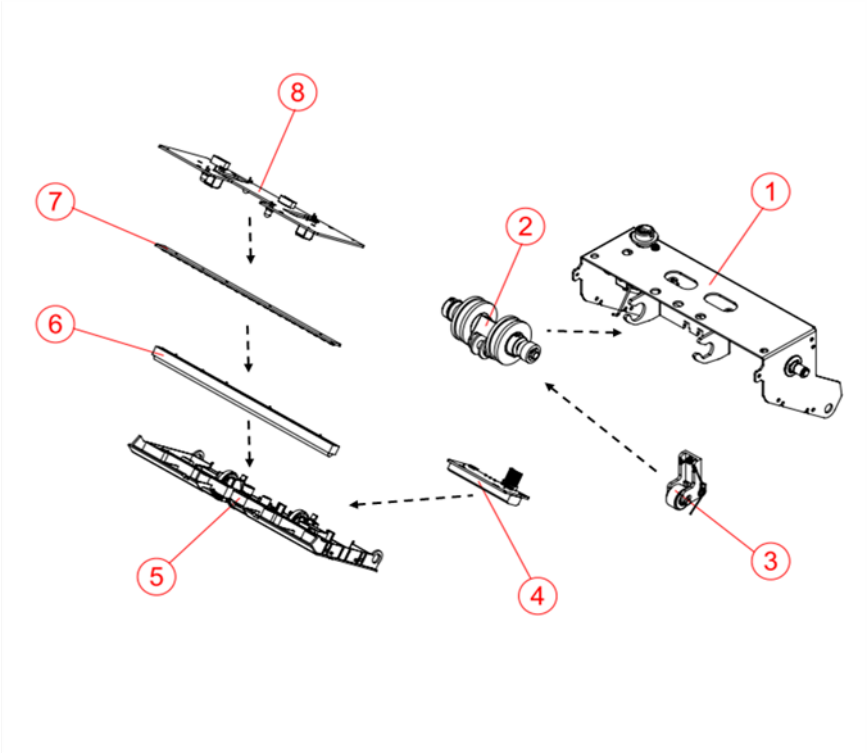
2. Disassemble back cover from the machine.

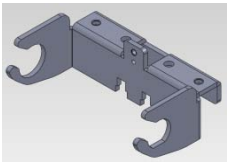
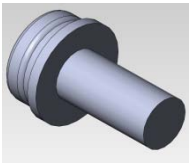
5.3 Total Assembly

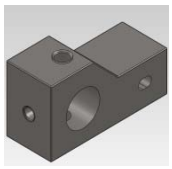
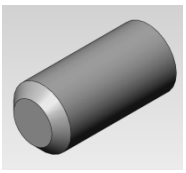
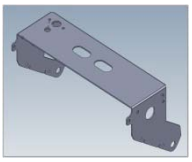
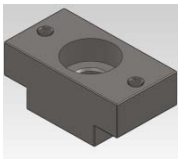
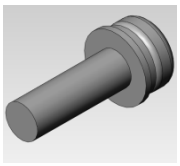
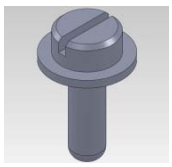
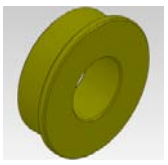


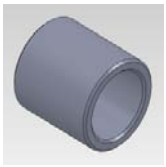
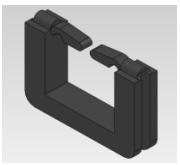
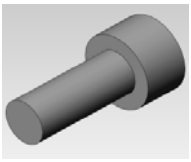
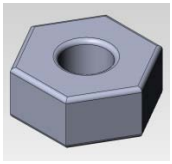
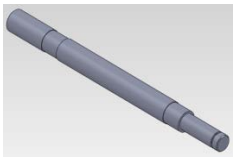
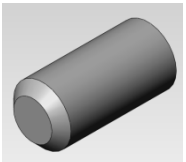


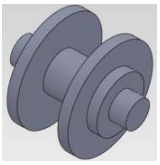
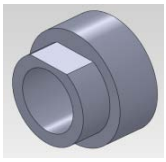
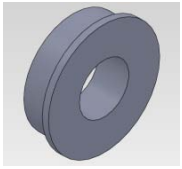
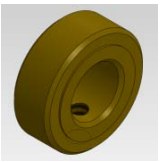
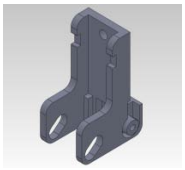
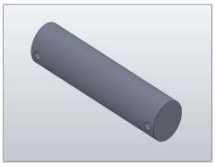
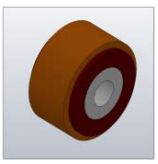
5.3.1 Upper Bill Path Module

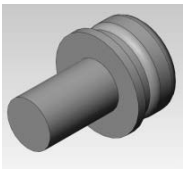
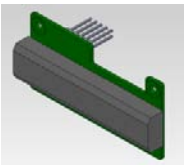
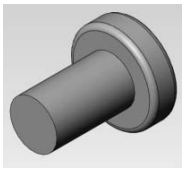
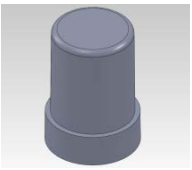
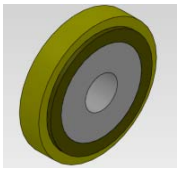


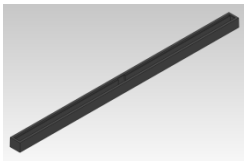
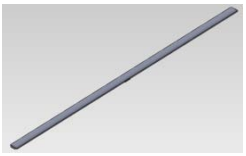
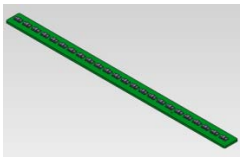
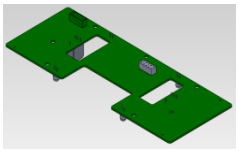
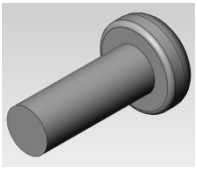
No.	Part Number	Part Name in English	Picture	Unit
1	3TP00012030011	feed shaft (12)		1
	3NC51500120010	feed BK frame		1
	3SC00040100200	M4x10-Round head (w/ spring washer)		5
	3SP01150070010	Torsion (1.5-Ø14)		1

	3TP20000030010	feed adjustment bar		1
	3SC86030061000	M3x6 hex socket set screw (Nyloc)		1
	3NC00800120020	Top Frame		1
	3TP20000030020	feed adjustment fixed		1
	3SC00030100200	M3x10-Round head (w/ spring washer)		2
	3SP31140210010	Compression adjustment (1.4-21)		1
	3TP20000030030	SCREW M8 (P0.5)		1
	3TP10816060010	shaft sleeve (8-16)		2
	WA061208KN7000	E-ring (Ø6)		2

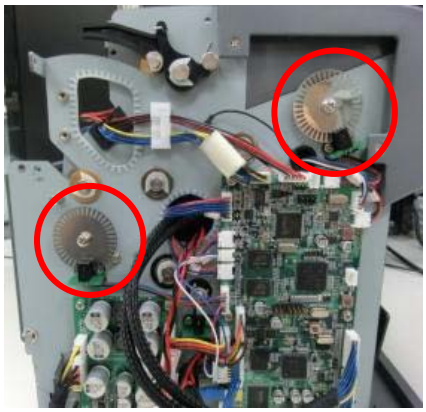
	3TP10608030010	shaft tube (8)		2
	WA040906KN7000	E-ring (Ø4)		2
	3OC05290000300	Square Snap Bushing		1
	3SC70040101000	M4x10 hex socket set screw		2
	3NU0040030200	M4 bolt		4
2	3TP00008030031	Retarding wheel shaft		1
	3RPA3100220010	Retarding wheel		2
	3SC86030061000	M3x6 hex socket set screw (Nyloc)		5
	3PP52600100180	Feed idler wheel arm holder		1

	3TP00005030030	metal idler wheel		1
	3TP19916010000	single direction bearing holder		1
	BEHF0612R01010	Single Direction Bearing		1
	3WA60500217000	E-ring (Ø5)		1
	BE0688ZZ160511	flange bearing (688ZZ)		1
	3TP10817060010	feed shaft (8) singler spacer		1
3	3PP52600100191	Feed idler wheel holder		1
	3TP00005030020	idler wheel shaft (5)		1
	3RPA3120220050	idler wheel(11-5-19)		1

	3SP01080040010	Torsion idler-L (0.8-Ø5.5)		1
	3SP01080040020	Torsion idler-R (0.8-Ø5.5)		1
	SC30006M05NW00	M3x6-Round head (w/ spring washer)		1
4	S-BNC6000A06	NC6000-M134		1
	3SC52030050200	Ø3×5-Pan		4
5	3PP02500100051	Upper Bill Path Plate		1
	3PP82400000140	LED LENS (Top assem)		4
	3RPA3120220060	idler wheel(5-6-22)		2
	3TP00006030021	idler wheel shaft (6)		2

	3SP01060020010	Torsion idler (0.6-Ø3.0)		2
6	3PP52100110120	LED LENS holder		1
	3PP82100000030	LED LENS		1
7	S-BNC6000A05	NC6000-IRTE		1
8	S-BNC6000A07	NC6000-S		1
	3SC02030080200	Ø3×8-Round head		7

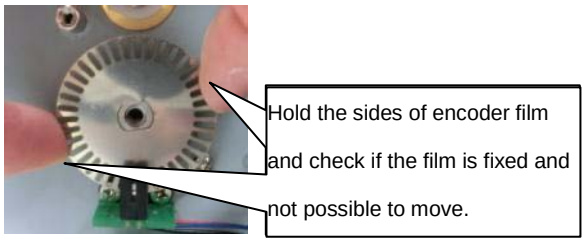
1. Turn the machine to left side and find the two encoders.

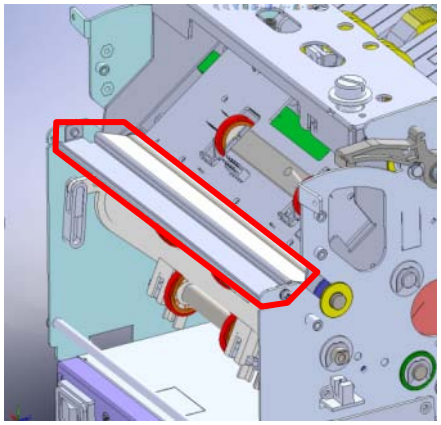


2. Loosen the two screws (M4x6-round head with spring washer) on the encoder.

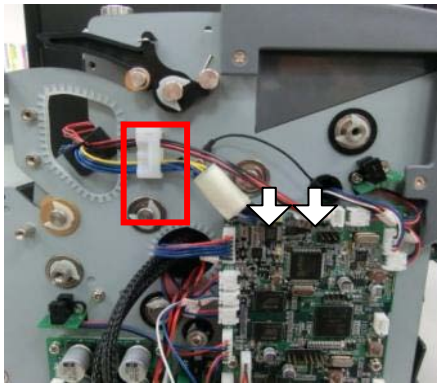
*Note1: Take off the encoder before proceeding disassembly of the machine in order to prevent damaging them.

*Note2: After assembling the encoders, make sure they are fixed correctly on the machine or it will cause strange sounds during operation.





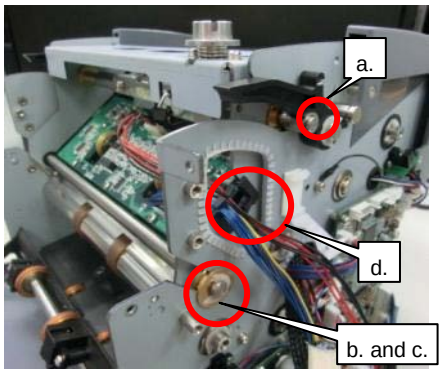
3. Loosen the screw (M3x6-Rround Head with spring washer) on both sides of EMI plate and disassemble it from the machine.



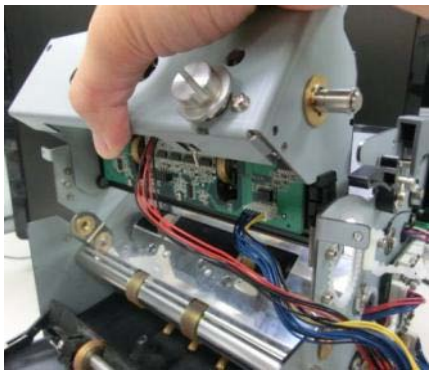
4. Turn the machine to the left side and release the cable from the cable clamp.

5. Disconnect the two cables which are connected to the PCB-Motor board.

6. Turn the machine to the rear side and take off the two plastic e-rings (Ø6) from the shaft of top assembly.

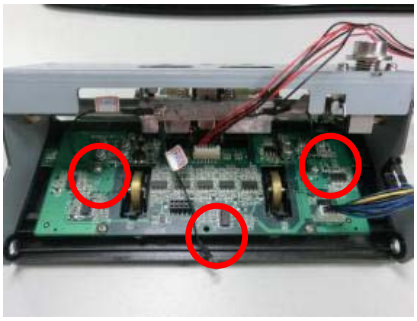


7. Dismount the upper bill path module from the machine.
   a. Remove the shaft from the Position (Feed)-L and R.
   b. Take off the plastic e-ring (Ø6) from the shaft.
   c. Disassemble the top assembly shaft from the machine.
   d. Release the cable from the Square Snap Bushing



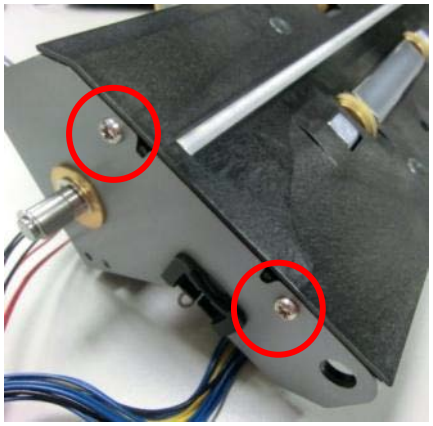
8. The upper bill path module is free to be removed from the machine.

5.3.1.1 Upper Bill Path Plate

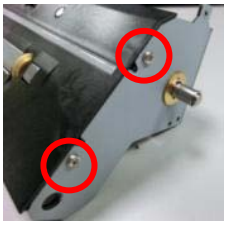


1. Turn the upper bill path module to have the sensor side down.

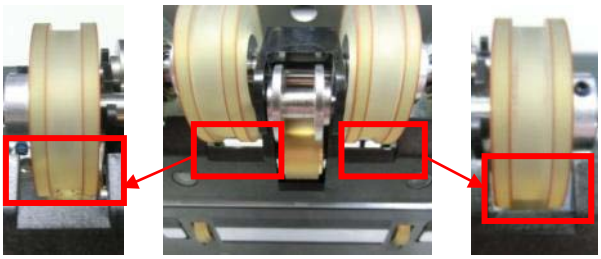
2. Loosen the three screws (Ø3x8-Round Head) to release the ground cables.

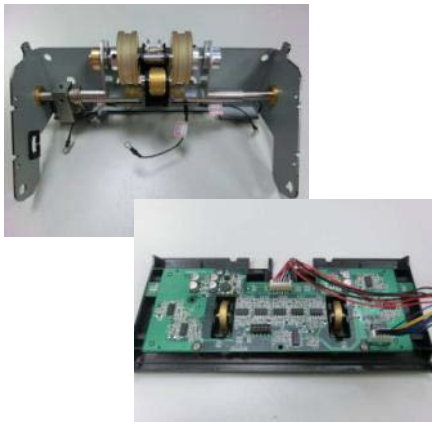


3. Loosen the two screws (Ø3x8-Round Head) on both sides.



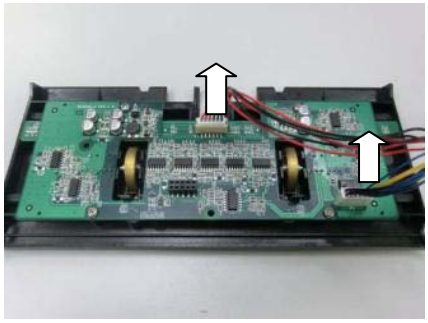
*Note: When assembling the upper bill path plate with retarding wheel module, please make sure there's space between the wheel module and the plastic.





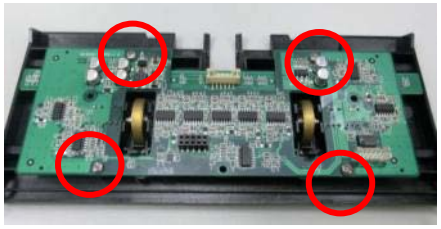
4. The upper bill path plate is removed from the retarding wheel module.

5.3.1.2 PCB NC6100-S board

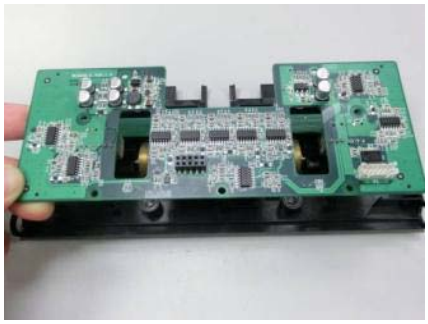


1. Release the cables from the connecters.

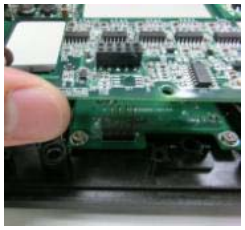
*Note: When plugging in the cable on the connecters, please make sure all the pins are well connected on the cable.

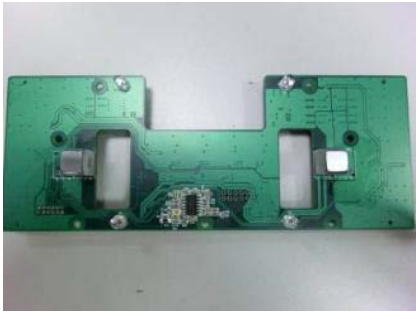


2. Loosen the four screws (Ø3x8-Round Head) on the PCB-S board.



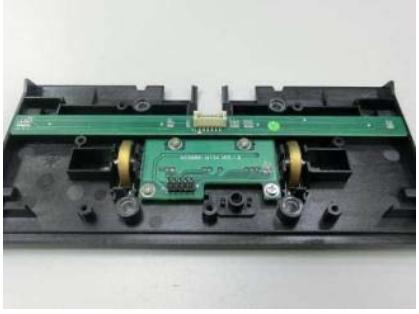
3. Pull up straightly the PCB-S board.





4. The PCB-S board is removed from the upper bill path module.

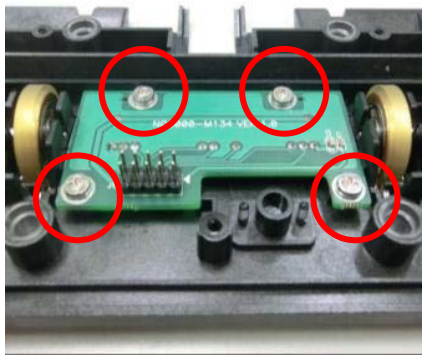
5.3.1.3 PCB NC6100-IRTE Board



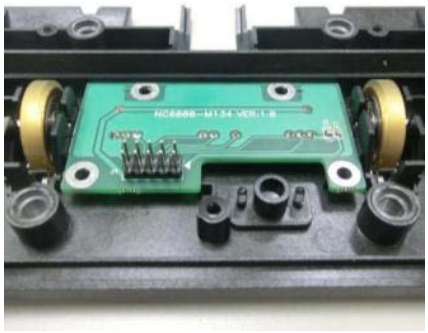
1. Pull up the NC6100-IRTE board.

2. The LED Len is under the NC6100-IRTE board.

5.3.1.4 PCB NC6000-M134 Board



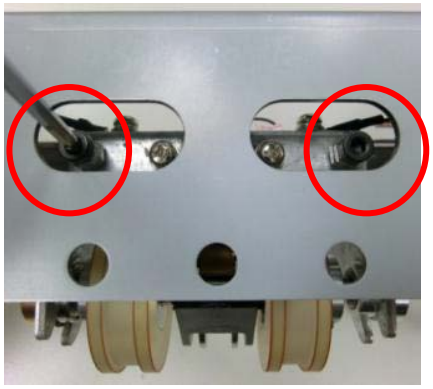
1. Loosen the four screws (Ø3×5-Pan) on the NC6000-M134 board.



2. The NC6000-M134 board is now free to be removed.

5.3.1.5 Retarding Wheel Module

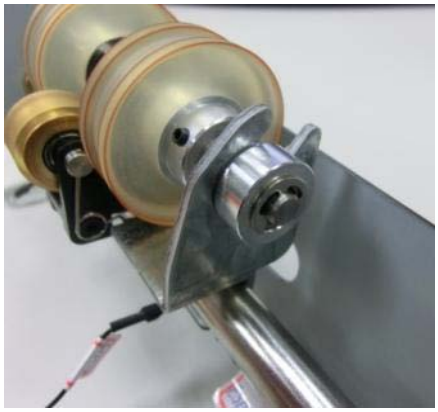
1. Find the retarding wheel module.



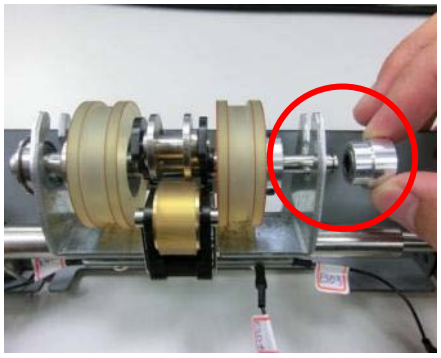
2. Use a 3mm hex key to loosen the two hex flange (M4×10)

3. Use a 1.5mm hex key to release the screw on the retarding wheel spacer.

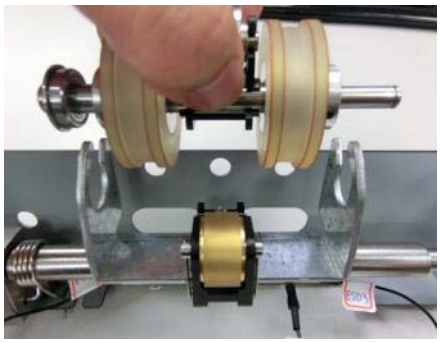
*Note: When assembling the singler spacer, please use two pcs of milar film to maintain a certain distance between the spacer and the top frame.



4. Release the E-ring from the left side of shaft by using a screwdriver (-).

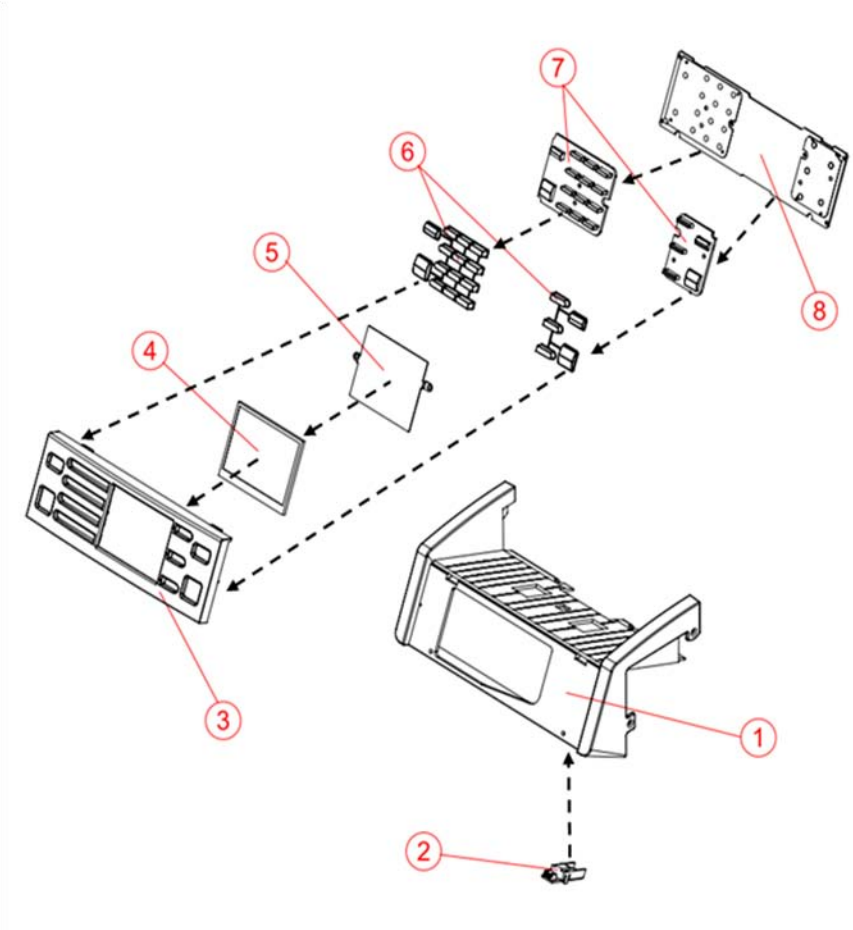


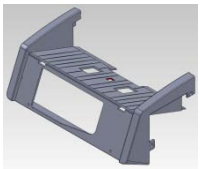
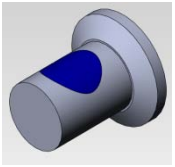
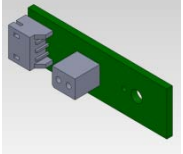
5. Remove the bearing from the retarding wheel shaft.

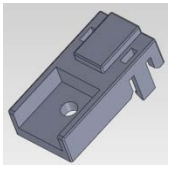
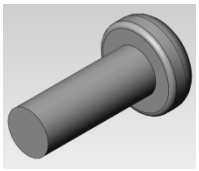
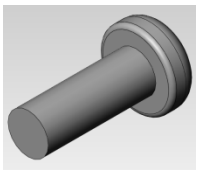
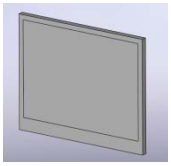
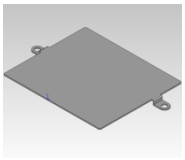
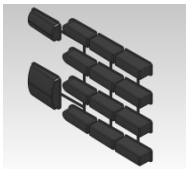
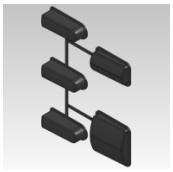
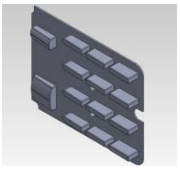


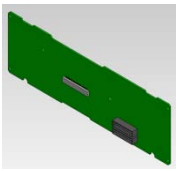
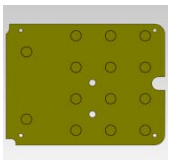
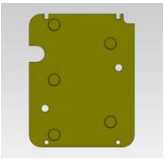
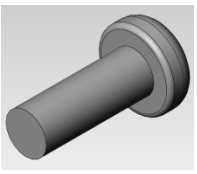
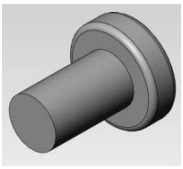
6. The retarding wheel is now free to be removed from the module.

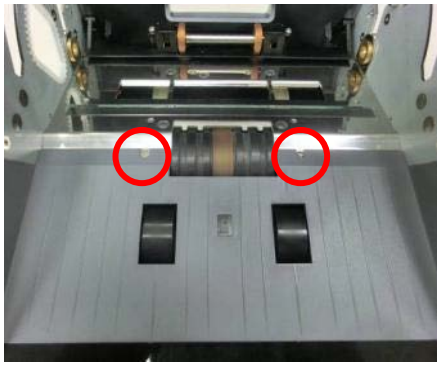
5.3.2 Control Panel Module



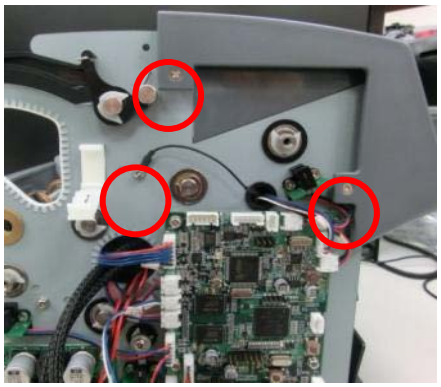
No.	Part Number	Part Name in English	Picture	Unit
1	3PP02100130030	Top front		1
	3SC16030050200	M3x5-Countersunk		4
2	S-BNC6000A10	NC6000-IRR		1

	3PP72100000061	hopper sensor holder		1
	3SC02030080200	Ø3×8-Round head		1
3	3PP72000080150	Front panel		1
	3SC02030080200	Ø3×8-Round head		2
4	C-L00010	TFT LCD Panel		1
5	3NC90800120050	LCD Holder		1
6	3PP62000080140	14 rubber button		1
	3PP62000080170	5 rubber button		1
7	3RP13400100040	14 rubber button		

	3RP13400100050	5 rubber button		
8	S-BNC6000A02	NC6000-UI		1
	3ST4NC6000G020	Metal Dome 14 key		1
	3ST4NC6000G010	Metal Dome 5 key		1
	3SC02030080200	Ø3×8-Round head		2
	3SC52030050200	Ø3×5-Pan		4

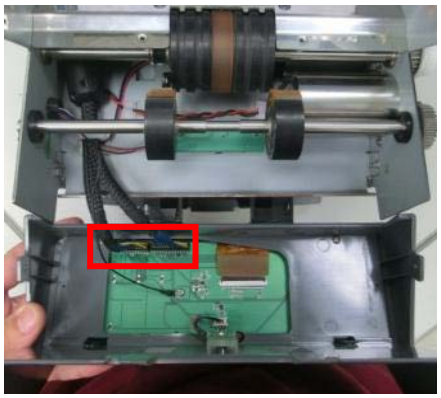


1. Loosen the two screws (M3x5-Countersunk) on the control panel module.



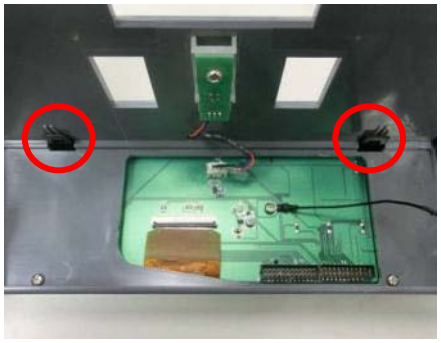
2. Loosen the screws (M3x5-Countersunk) on both sides of the hopper.

3. Release the ground cable by loosening the screw (M3x6-Rround Head with spring washer).



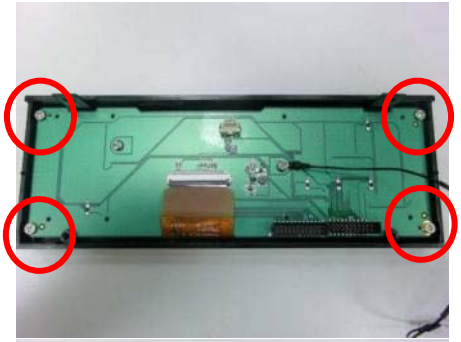
4. Disconnect the cables on the PCB board.
5. The control panel module is removed from the machine.

5.3.2.1 PCB NC6000-UI Board

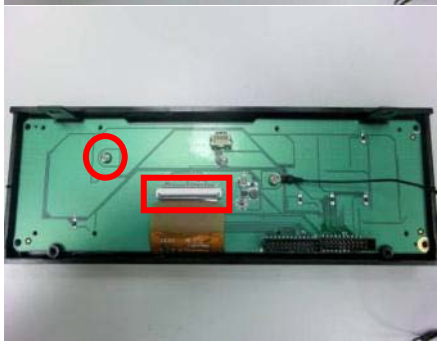


1. Turn the control panel module to the rear side.
2. Release the tenon of control panel assembly from the control panel plate.

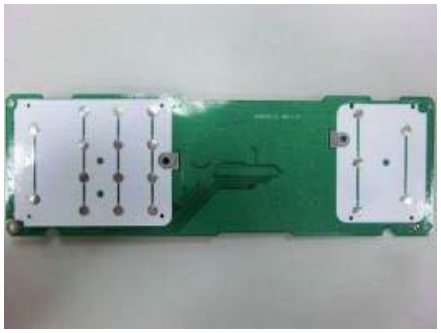
3. The control panel assembly is now free to be removed.



4. Turn the control panel to the rear side.
5. Loosen the four screws (Ø3x5-Pan) on the NC6100-UI board.

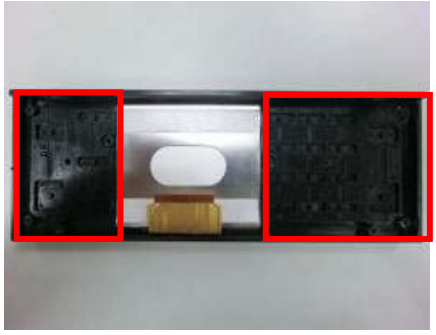


6. Loosen the screw (Ø3x8-Round Head) on the NC6100-UI board.
7. Release the FCC cable of LCD display from the connector.



8. The NC6100-UI board is now free to be removed.

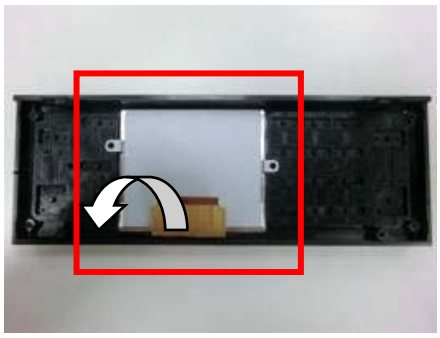
5.3.2.2 Keypads



1. Pull out the keypads from the control panel.

2. The left and right keypad is now removed.

5.3.2.3 LCD Display



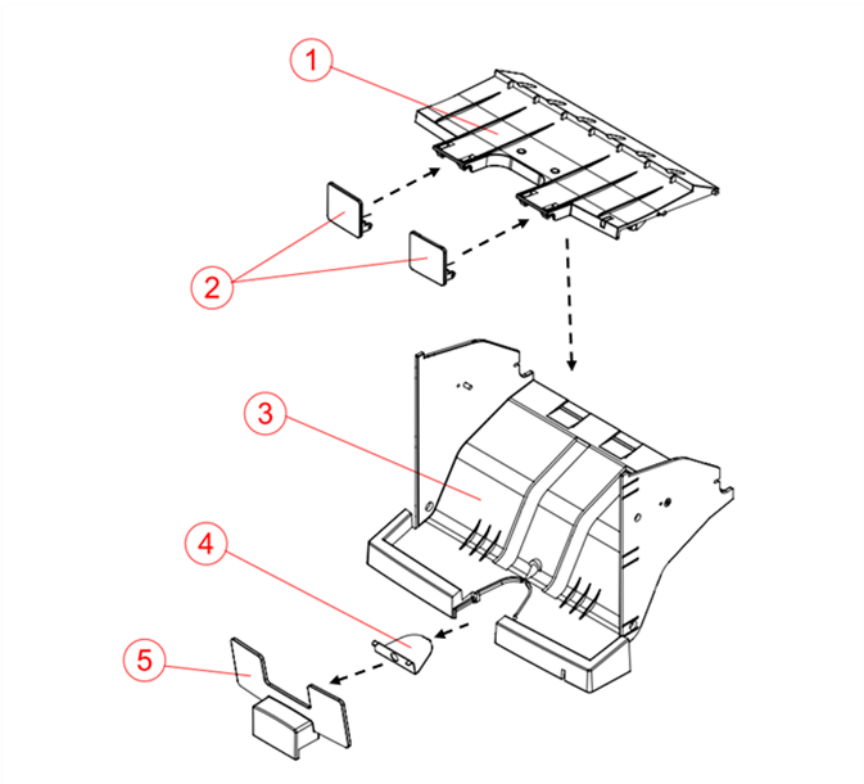
1. Pull out the LCD display from the control panel.

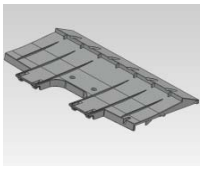
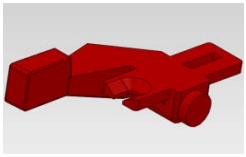
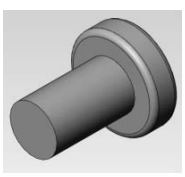
2. The LCD display and LCD holder are removed from the control panel.

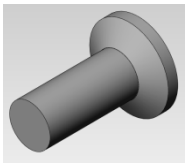
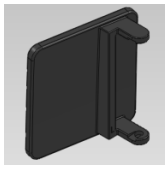
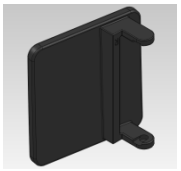
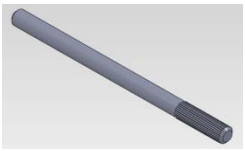
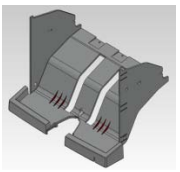
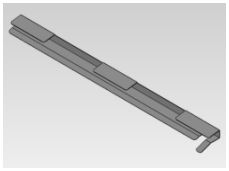
5.3.2.4 PCB NC6000-UI_IRR Board

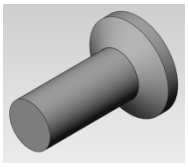
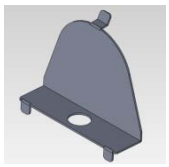
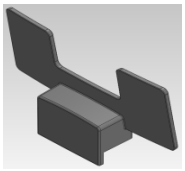
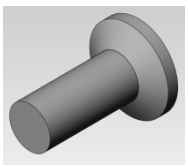
1. Loosen the screw (Ø3x8-Round Head) on the NC6000 UI_IRR board.
2. The NC6000 UI_IRR board is now removed from the hopper set.

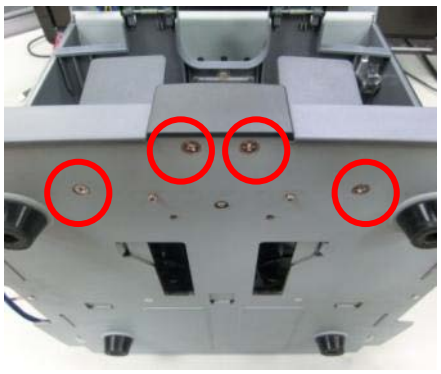
5.3.3 Stacker Module



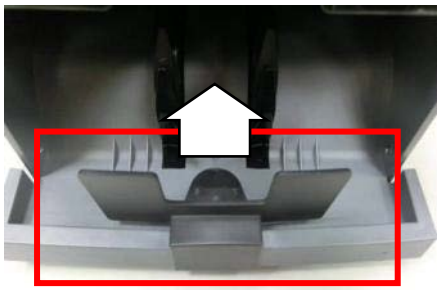
No.	Part Number	Part Name in English	Picture	Unit
1	3PP72100130130	Outlet part 2		1
	3PP82400000080	Led (Outlet part 2)		1
	3PP82100000020	reject sensor light guide		1
	3SC52030050200	Ø3×5-Pan		1

	3SC12030080200	Ø3×8-Countersunk		2
2	3PP92400020110	Reject stopper mirror		1
	3PP92400020120	Reject stopper		1
	3SP00050080010	Torsion reject (0.5-Ø2.7)		2
	3TP00002030010	Reject shaft (2)		2
3	3PP72100130140	Outlet part 1		1
	3OC25390000000	static brush		3
	3NC90602190010	Static Brush Fixed BK		1
	C01NN01NN130	Harness - ESD1		1

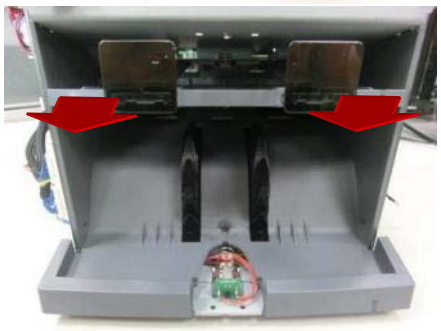
	3SC12030080200	Ø3×8-Countersunk		2
4	3NC80300190020	Outlet Static BK		1
5	3PP92100040100	Sensor cover		1
	3SC12030080200	Ø3×8-Countersunk		2



1. Lay down the machine and loosen the four screws (Ø3x8-Countersunk) on the bottom of the machine.



2. Release the stacker stopper and stacker static plate from the stacker module.

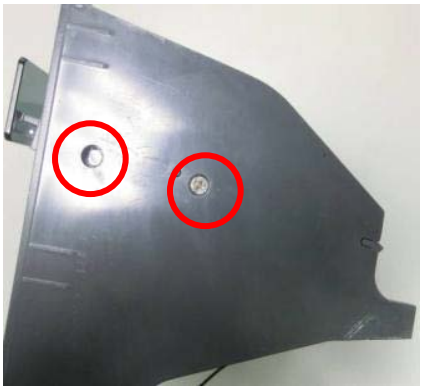


3. Pull out the stacker module straightly and slowly.

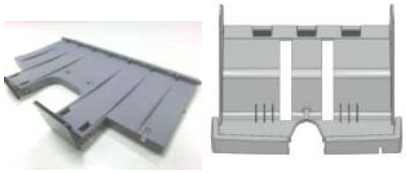
*Note: There are few cables connected between the stacker module and the PCS boards.

4. The stacker module is now removed from the machine.

5.3.3.1 Stacker and Reject Pocket



1. Loosen the two screws (Ø3x8-Countersunk) on both sides of the stacker module.
2. Release the reject pocket plate from the assembly.



3. The reject pocket is removed from the stacker module.

5.3.3.2 Reject Pocket Stoppers

1. Get the reject pocket plate which is disassembled from the stacker module.

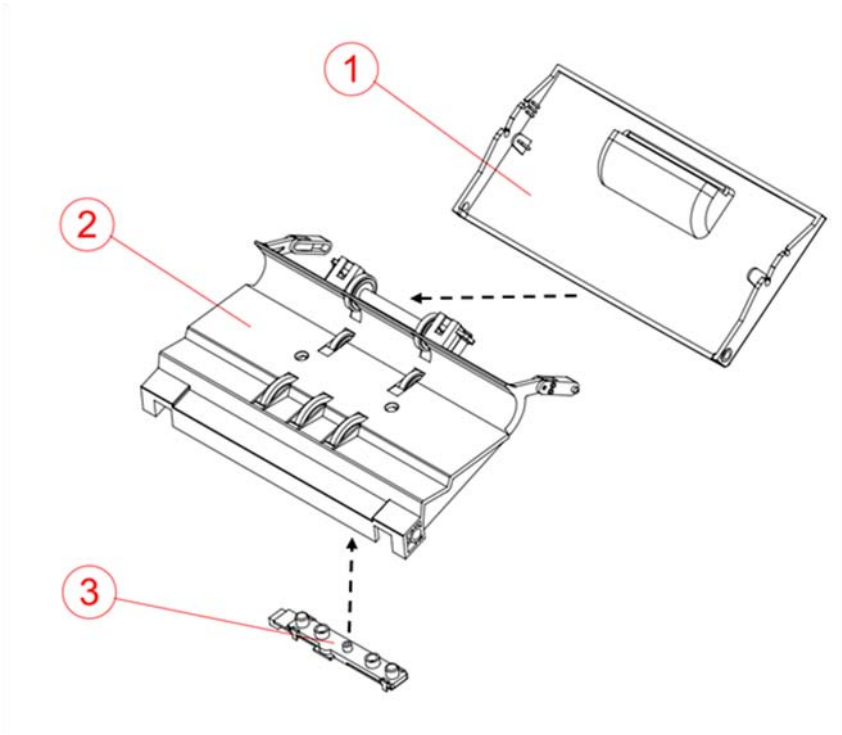
Right Side

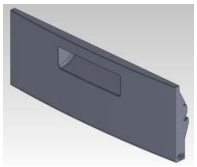
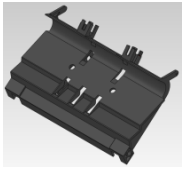
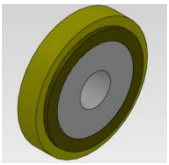
Left Side

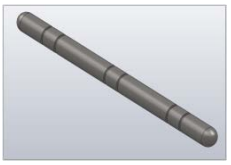
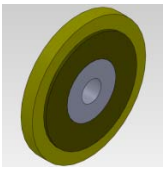
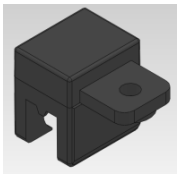
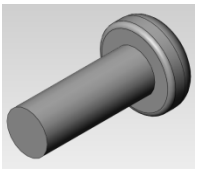
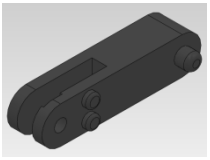
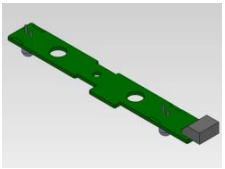
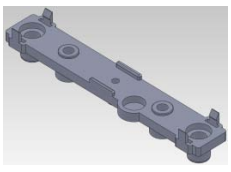
2. Release the shaft from the reject pocket stopper with the indicated direction.
3. The stopper and the spring are now free to be removed.

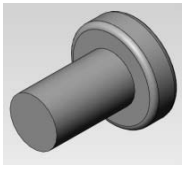
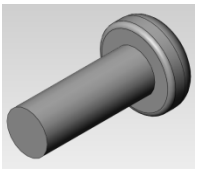
*Note: The right and left stopper are not the same, please notice the mark on the stopper as the picture below.

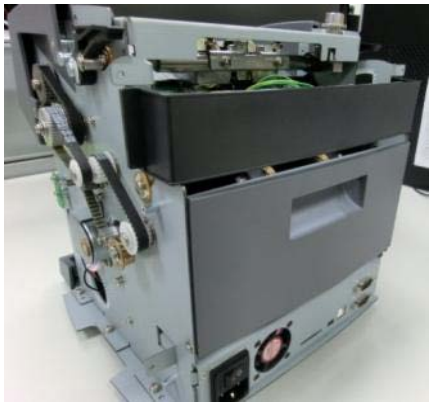
5.3.4 Bottom Conveyor Module



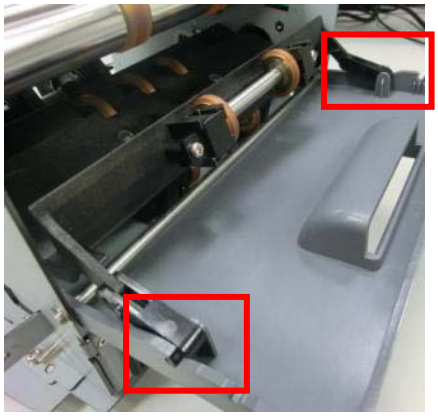
No.	Part Number	Part Name in English	Picture	Unit
1	3PP12100130020	Back Lid		1
2	3PP22500100031	Bottom Conveyor plate		1
	3TP00007030010	idler wheel shaft-A (7)		2
	3RPA3120220060	idler wheel(5-6-22)		4

	3TP00006030030	idler wheel shaft-B (6)		1
	3RPA3120220070	idler wheel(5-6-35)		3
	3WA60500217000	E-ring (Ø5)		10
	3SP02060030010	Torsion idler (0.6-Ø6.8)		6
	3PPA2600100110	Idler Fixed		6
	3SC02030080200	Ø3×8-Round head		6
	3PP62100100150	Back lid connector		2
3	S-BNC6000A11	NC6000-DTE		1
	3PP52400000130	Led PCB holder (2LED)		1

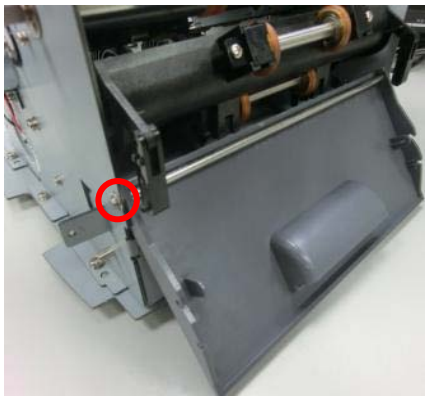
	3SC52030050200	Ø3×5-Pan		1
	3SC02030080200	Ø3×8-Round head		2



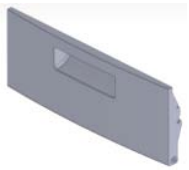
1. Open the back lid.



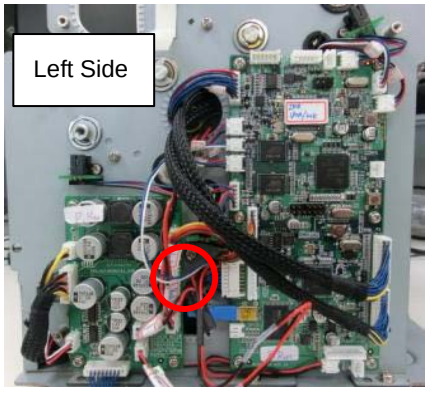
2. Release the back lid connector from the back lid.



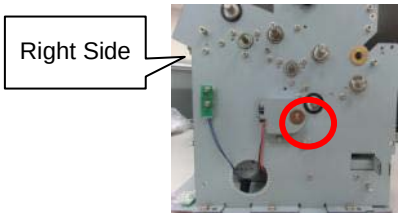
3. Release the E-ring (Ø4) from both sides of shaft
4. The back lid is now removed.

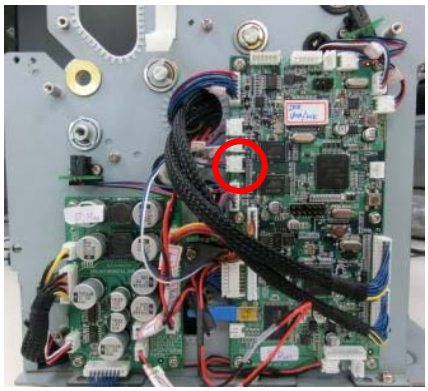


5.3.4.1 Bottom Conveyor Plate



1. Loosen the screws (M4x6-Round Head) on both sides.





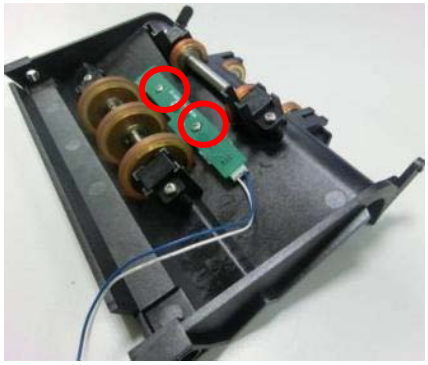
2. Disconnect the indicated cable from the connector.

3. Slowly pull out the bottom conveyor plate.

*Note: If it results in dificulty when pulling out the bottom conveyor plate, please check if the cable has been released.

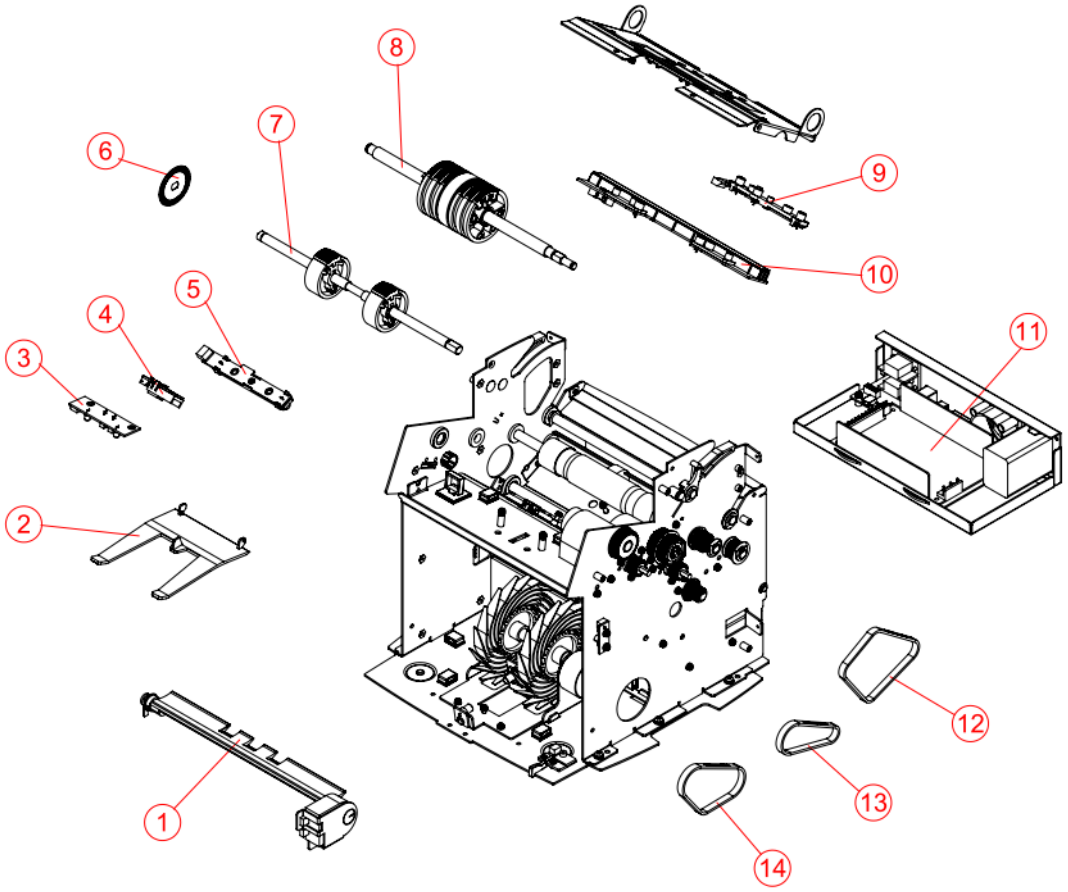
The bottom conveyor plate has been removed from the machine.

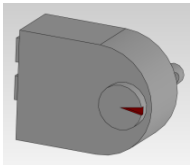
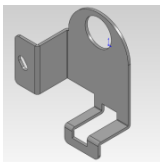
5.3.4.2 PCB NC6000-DTE Board

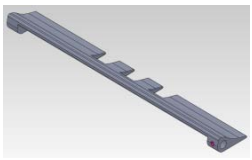
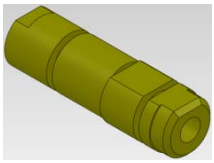
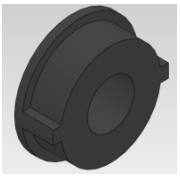
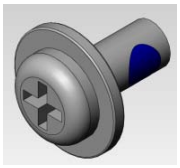
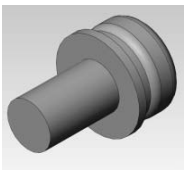
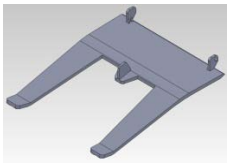
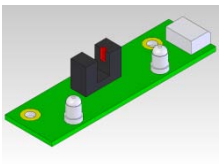
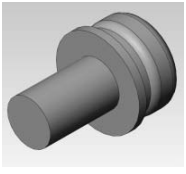


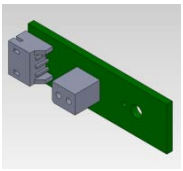
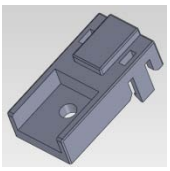
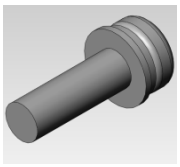
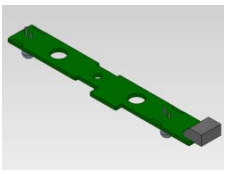
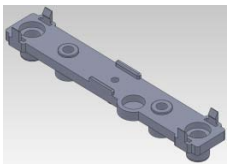
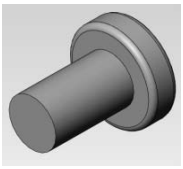
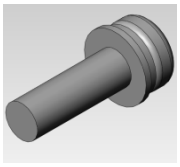
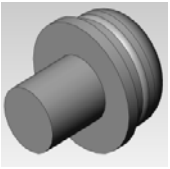
1. Loosen the two screws (Ø3x8-Round Head) on the NC6000-DTE board.
2. The NC6000-DTE board is now removed from the machine.

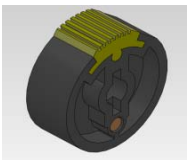
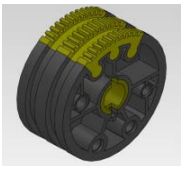
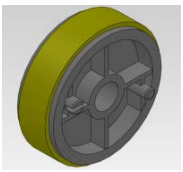
5.3.5 Base Module

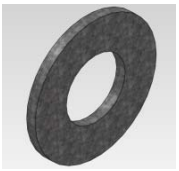
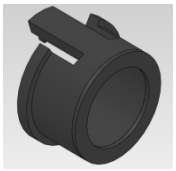
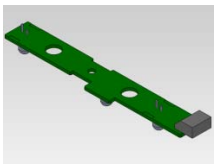
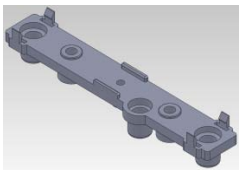
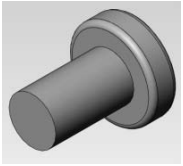
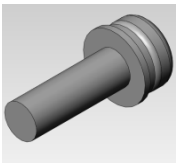
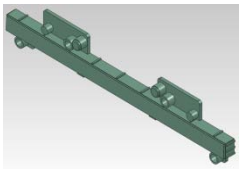
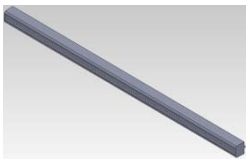
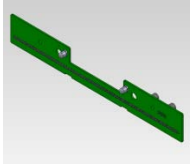


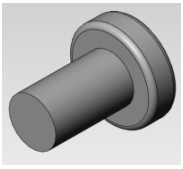
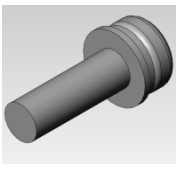
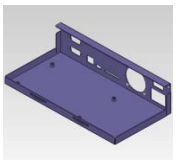
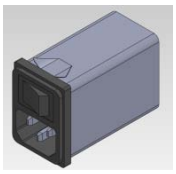
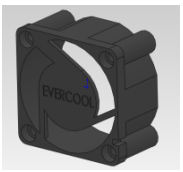
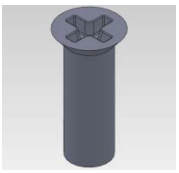
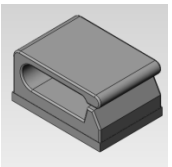
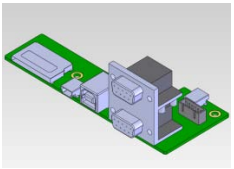
No.	Part Number	Part Name in English	Picture	Unit
1	OSPSOLRSA32470	Solenoid		1
	3NC50800120121	Solenoid Cover		1

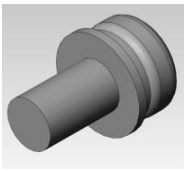
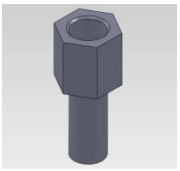
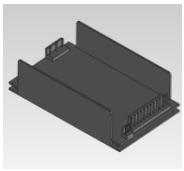
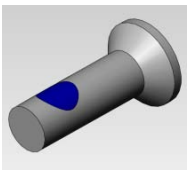
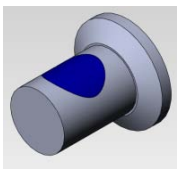
	3PP62500100160	Note Toggler		1
	3TP00306130010	Interrupter bar		1
	3PPA2600100120	Shaft sleeve (interrupter)		1
	3NC60800120030	Interrupter Plate		1
	3SC36030060200	M3×6-Round washer		2
	SC30006M05NW00	M3x6--Rround head (w/ spring washer)		1
2	3PP92600100130	Reject pocket note holder		1
3	S-BNC6000A13	NC6000-RJP		1
	SC30006M05NW00	M3x6-Round head w/ spring washer		2

4	S-BNC6000A10	NC6000-IRR		1
	3PP72100000061	hopper sensor holder		1
	3SC00030100200	M3x10-Round head w/ spring washer (PH#2)		1
5	S-BNC6000A12	NC6000-DTR		1
	3PP52400000130	Led PCB holder (2LED)		1
	3SC52030050200	Ø3×5-Pan (PH#2)		1
	3SC00030100200	M3x10-Round head w/ spring washer (PH#2)		2
6	3NCA0300190010	Encoder wheel		2
	3SC00040060200	M4x6-Round head w/ spring washer		2

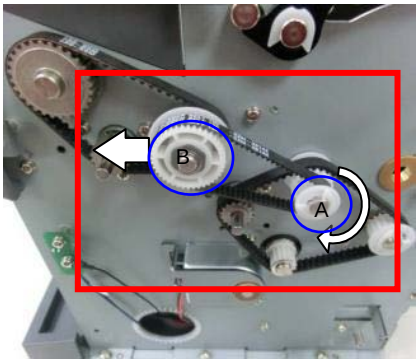
7	3TP00008030050	Kicker roller shaft		1
	3OC27170000000	Aperture spring pin (Ø3x14)		2
	3RPA3100220020	kicker wheel		2
	WA061208KN7000	E-ring (Ø6)		2
8	3TP00010030010	Singler shaft (10)		1
	3OC27170000000	Aperture spring pin (Ø3x14)		1
	3RPA3100220030	Singler wheel		2
	3RPA3100220040	Singler wheel - driver		1
	3WA41050917000	Wave washer (Ø10.5)		1

	3WA01040209000	Flat Washer (Ø10.4×Ø21×1.5t)		1
	3PPA2600100130	Singler wheel fixer		1
9	S-BNC6000A11	NC6000-DTE		1
	3PP52400000140	Led PCB holder (3LED)		1
	3SC52030050200	Ø3×5-Pan (PH#2)		1
	3SC00030100200	M3x10-Round head w/ spring washer		2
10	3PP52400000160	IR guide box		1
	3PP82400000070	transmission emitter cover		1
	S-BNC6000A04	NC6000-IRTR2		1

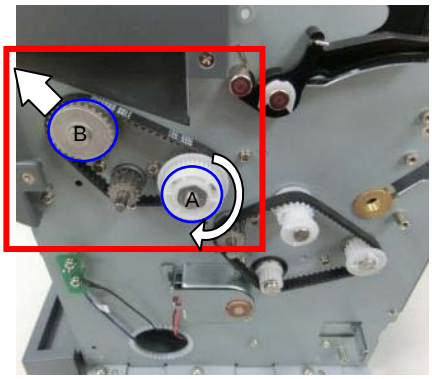
	3SC52030050200	Ø3×5-Pan		2
	3SC00030100200	M3x10-Round head (w/ spring washer)		4
11	3NC20800120060	Power BK		1
	ED000003F002	AC socket EMI filter		1
	C05MH03NN125	Harness - AC_IN		1
	C-F00003	Fan		1
	3SC12040120200	Ø4×12-Countersunk		4
	3OC04290000100	Wire Holder A		1
	S-BNC6000A08	NC6000-COM		1

	SC30006M05NW00	M3x6-Round head w/ spring washer		2
		M6 hex socket set screw		4
	C-V00016	Power Supply - Open Frame		1
	3SC16030100200	M3×10-Countersunk		4
	3SC16030050200	M3x5-Countersunk		2
12	3LB0003M225000	Timing Belt (225-3Mx6mm)		1
13	3LB0S20M160000	Timing Belt (160-S2Mx6mm)		1
14	3LB0S30M189000	Timing Belt (189-S3Mx6mm)		1

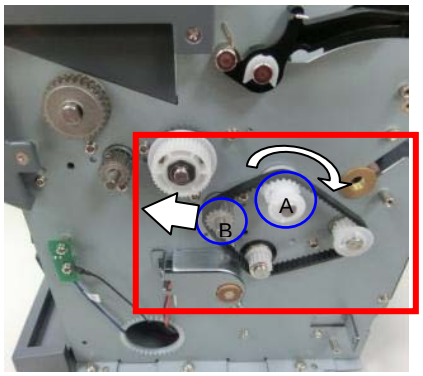
5.3.5.1 Timing Belts



1. Turing the gear (A) and pulling out the timing belt from the gear (B) to release the timing belt 160mm-S2M.

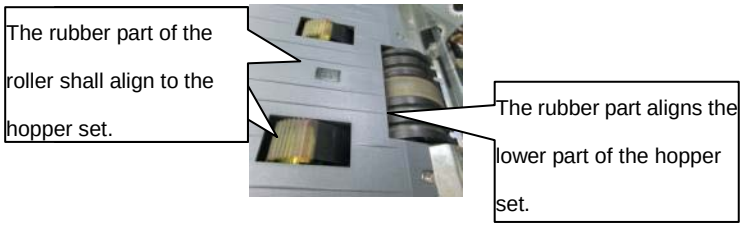


2. Use the same way as the first step to release the timing belt 189mm-S3M from the gears.

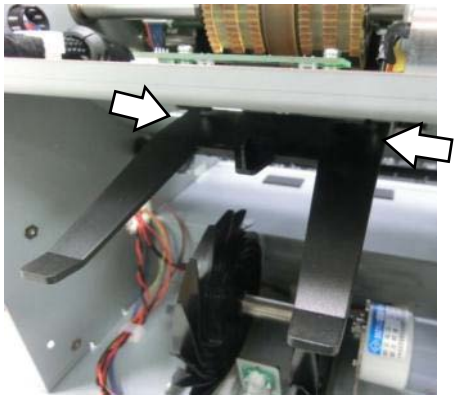


3. Repeat the disassembly way to release the timing belt 225mm-3M from the gears.

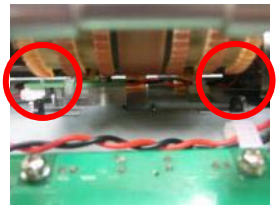
*Note: When assembling the drive belt, please make sure the rollers are in correct positions.



5.3.5.2 Reject Pocket Note Holder

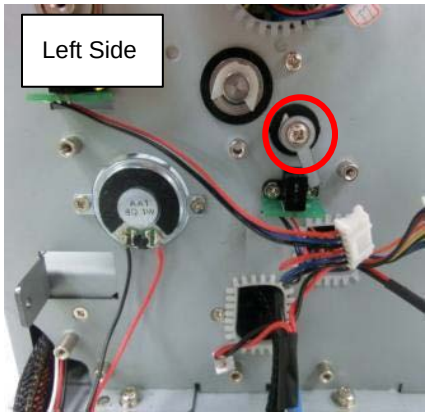


1. Push the reject pocket note holder from sides and release it from the tenon.



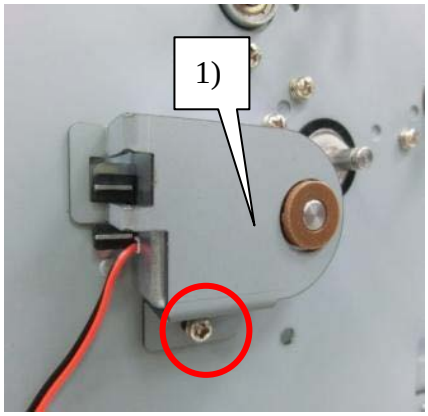
2. The reject pocket holder is now removed from the machine.

5.3.5.3 Note Toggler



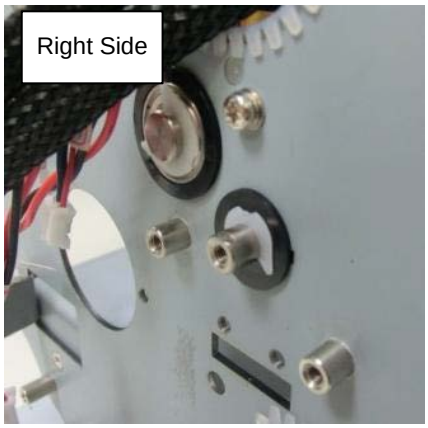
1. Loosen the screw (M3×6-Round Washer) on the solenoid interrupter plate and it's free to be removed.

2. Loosen the screw (M3×6-Round Washer) on the note toggler.

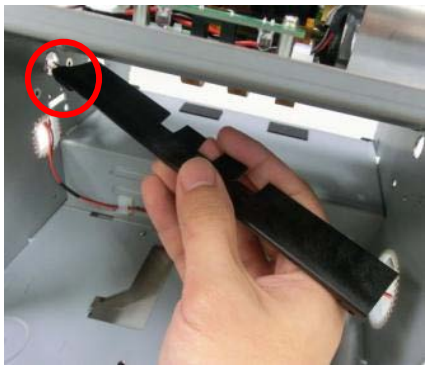


3. Loosen the screw (M3x6-Rround Head with spring washer) on the solenoid cover.
4. The solenoid cover is now free to be removed.

5. Pull out the solenoid to remove it from the machine.

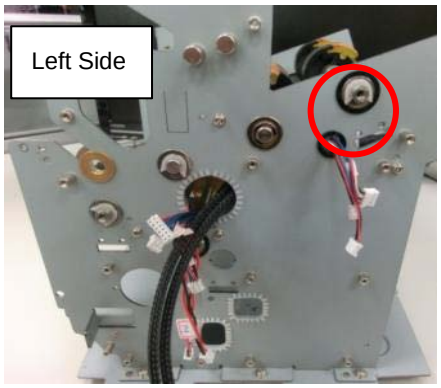


6. Release the plastic E-ring and the bearing from the shaft.

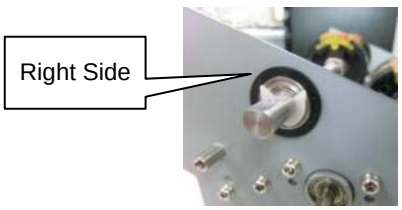


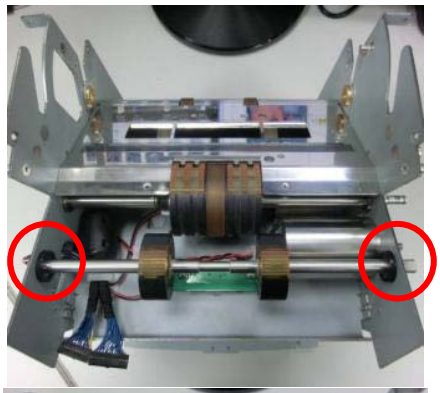
7. The note toggler is now free to be removed from the machine.

5.3.5.4 Kicker Roller Module

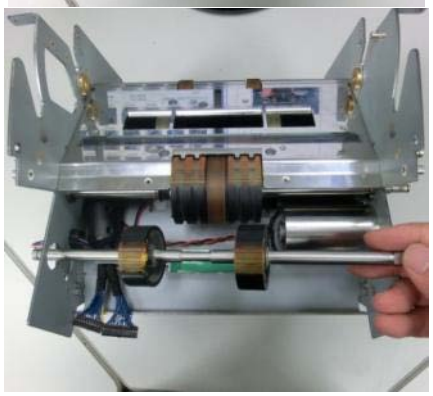


1. Release the plastic E-ring Ø6 from the shaft of kicker roller module.



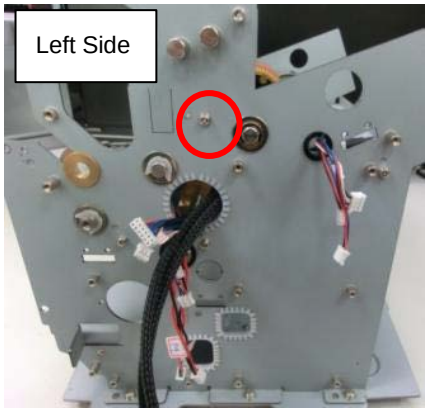


2. Release the bearing (688zz) from the shaft of kicker roller module.

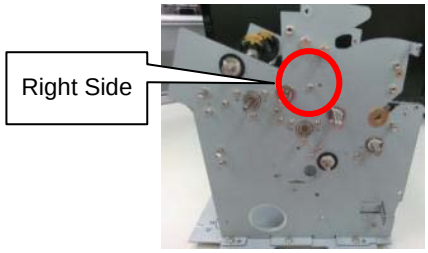


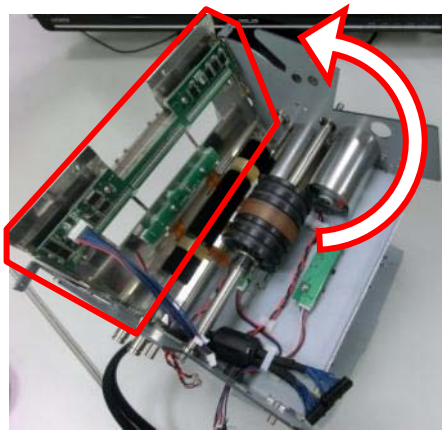
3. The kicker roller module is now free to be removed.

5.3.5.5 PCB NC6000-DTE Board

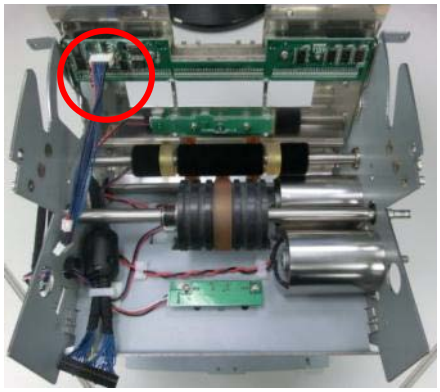


1. Loosen the screws (M3x6-Rround Head with spring washer) on both sides.

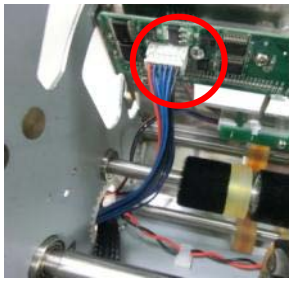


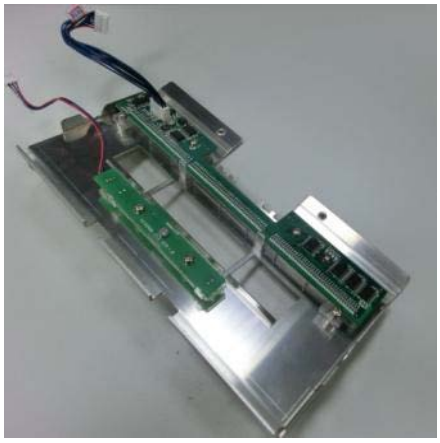


2. Turn the bill path upward slowly.

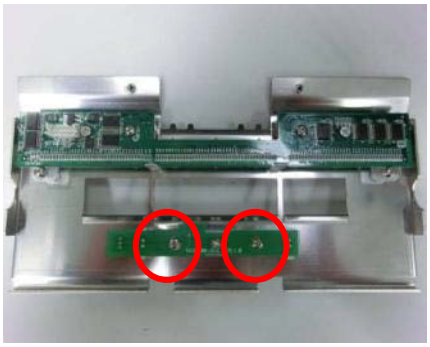


3. Release the cable from the connector.

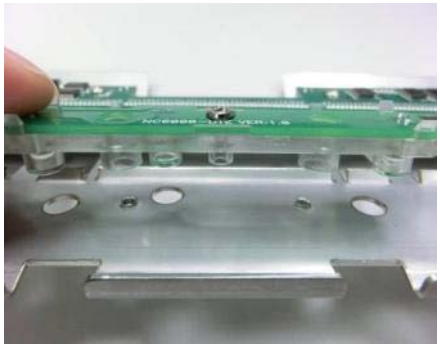




4. The bill path is now removed from the machine.

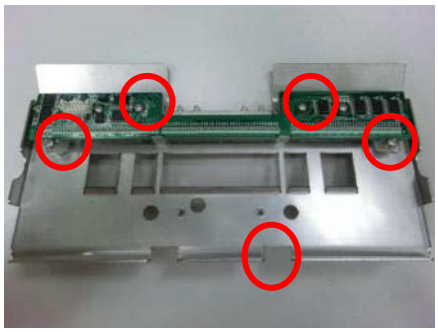


5. Loosen the two screws (M3x10-Round Head with spring washer) on the NC6000-DTE board.



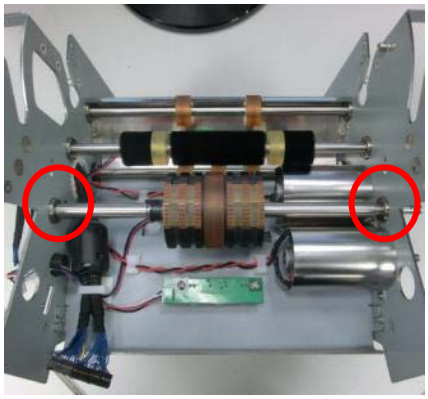
6. The NC6000-DTE board is now free to be removed from the bill path.

5.3.5.6 PCB NC6000-IRTR2 board and IR Guide Box

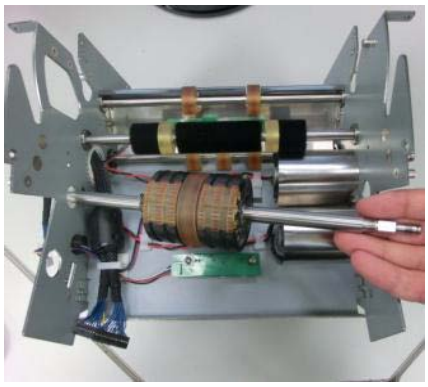


1. Loosen the four screws (M3x10-Round Head with spring washer) on the NC6000-IRTR2 board.
2. The NC6000-IRTE2 board is now free to be removed from the bill path.

5.3.5.7 Singler Module

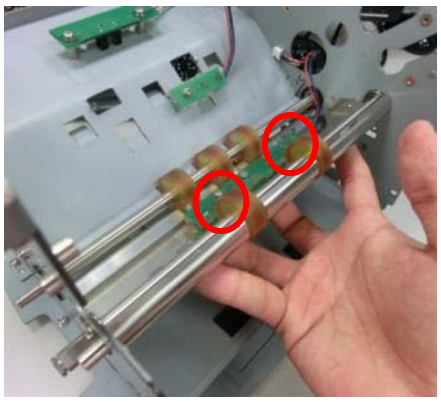


1. Release the bearing (688zz) from the shaft of singler module.



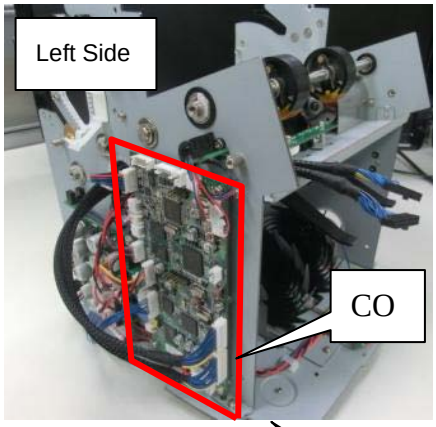
2. The singler module is now free to be removed.

5.3.5.8 PCB NC6000-DTR Board

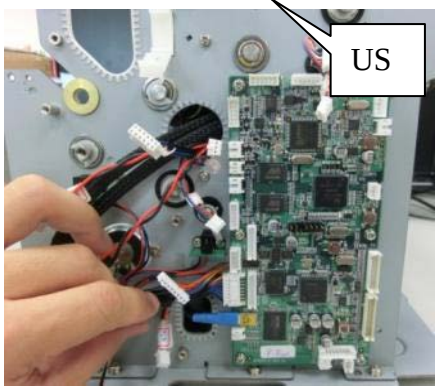


1. Loosen the two screws on the NC6000-DTR boards and remove the board from the bill path.

5.3.5.9 PCB NC6000-A Board

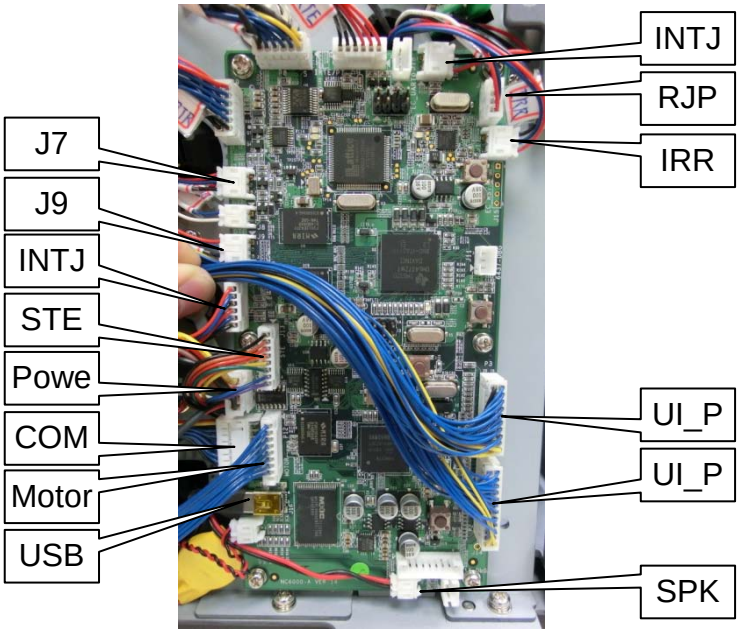


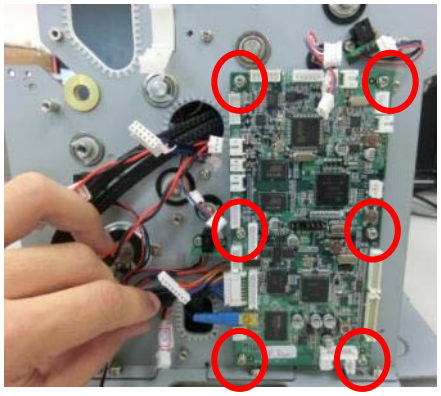
1. The NC6000-A board is on the left side of the machine.



2. Disconnect the cables from the NC6000-A board.

*Note: The following are the positions of cables to the corresponded connecter.

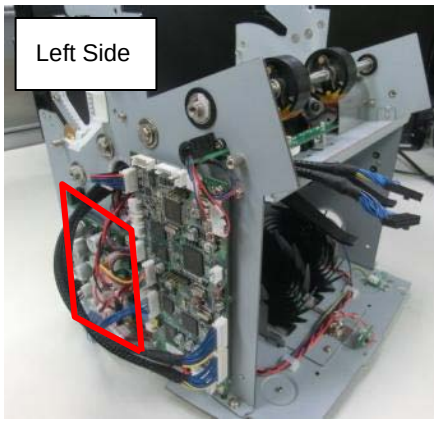




3. Loosen the six screws (M3x6-Rround Head with spring washer) on the NC6000-A board.

4. The NC6000-A board is now free to be removed.

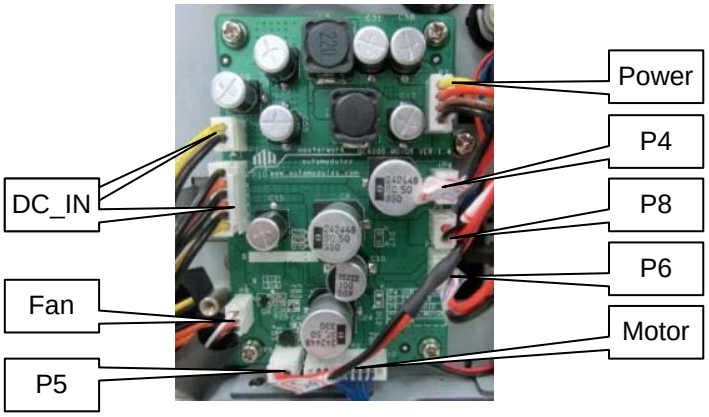
5.3.5.10 PCB NC6000-MOTOR Board

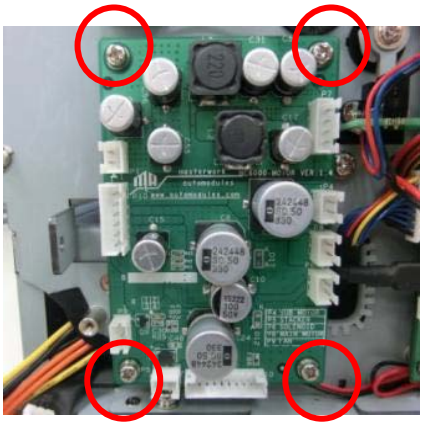


1. The NC6000-Motor board is on the left side of the machine

2. Disconnect the cables from the NC6000-Motor board.

*Note: The following are the positions of cables to the corresponded connecter.

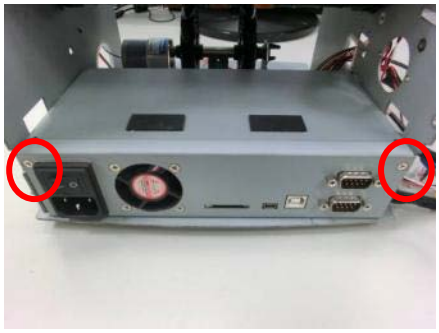




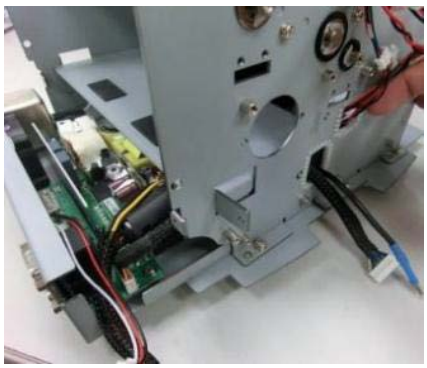
3. Loosen the four screws (M3x6-Rround Head with spring washer) on the NC6000-Motor board.

4. The NC6000-Motor board is now free to be removed.

5.3.5.11 Power Tray

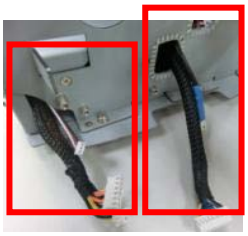


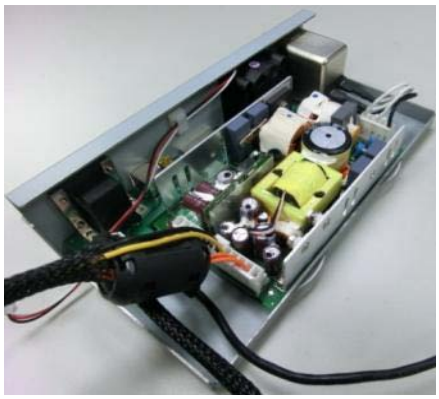
1. Loosen the two screws (M3x5-Countersunk) on the power tray



2. Pull out the power tray from the machine.

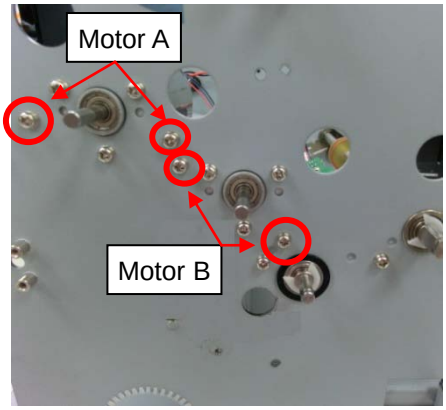
*Note: Please organize the cable in the correct position when assembling the power tray back.



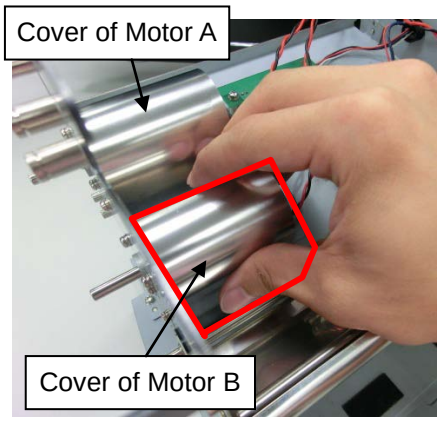


3. The power tray is now removed from the machine.

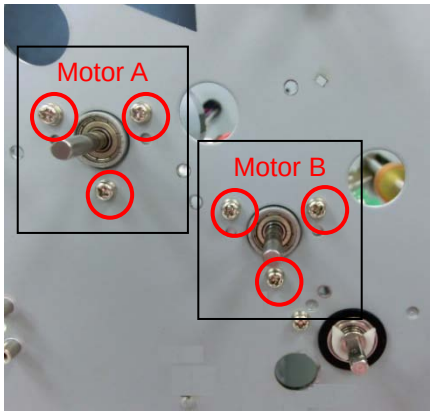
5.3.5.12 Motor A and B



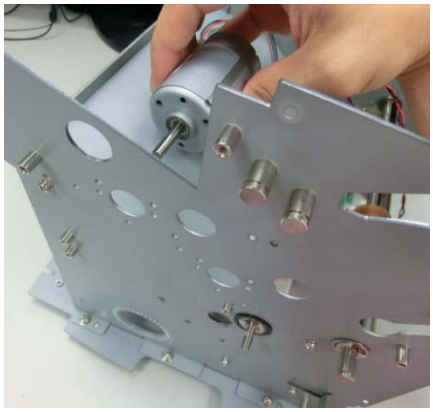
1. Loosen the screws (M3x6-Round head w/ spring washer) of the motor cover on the right side of the machine.



2. Release the motor cover from the machine.

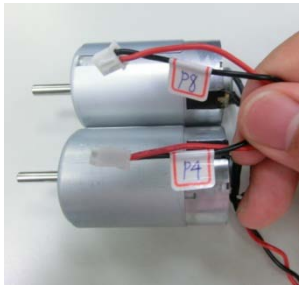


3. Loosen the three screws (M3x6-Round head w/ spring washer) of the motor.

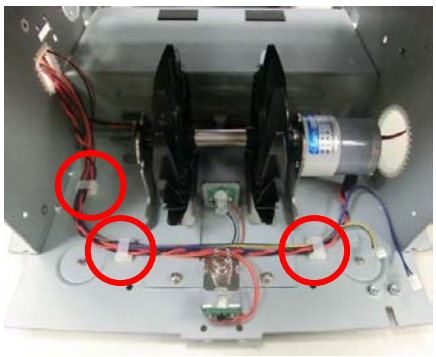


4. The two motors are new free to be removed from the machine.

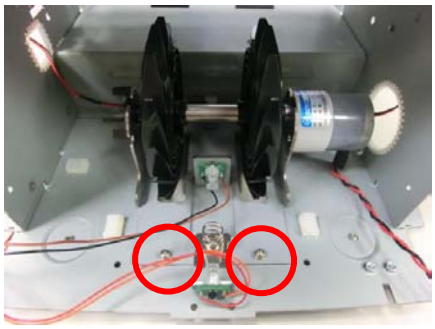
*Note: The cable of Motor A is P8 which is longer and the cable of Motor B is P4 which is shorter.



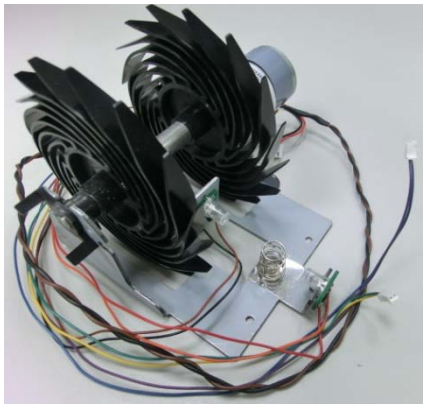
5.3.5.13 Impeller



1. Turn the machine to the front side.
2. Release the cable of impeller from the three cable clamps.



3. Loosen the two screws (M3x6-Round head w/ spring washer).



4. The impeller is now removed from the machine.

Chapter 6 Trouble Shooting

6.1 Definition of Message Codes

6.1.1 Check Bill Path

- Please open the bill path and check for foreign matter inside.

- Error with top bill path, please open it and check for foreign matter inside.

- Please open the bill path and remove the jammed banknotes from it.

- Error with buttom bill path, please open it and check for foreign matter inside.

6.1.2 Open Bill Path

- Top bill path is opened. Please close it before operation.

- Buttom bill path is opened. Please close it before operation.

6.1.3 Remove Banknotes

- Please remove the banknotes from hopper and replace them again.

- Please remove the banknotes from reject pocket. After removing them, the operation continues.

- The reject pocket is full. Please remove the banknotes from reject pocket.

- Please remove the banknotes from the stacker. After removing them, the oepration continues.

- The stacker is full. Please remove the banknotes from the stacker.

- The counted quantity doesn’t reach preset number. Please check again.

6.1.4 Error

- Please check if the motor error occurs when power on.
- Please make sure the encoder is working correctly.
- If the error still occurs, please contact your local service organization.

Appendix A Revision History

Rev. Ver:	Main Contents:	Date:
1.2	Modify calibration process (P.19). Add revision history (P.89).	Nov 23, 2012
1.1	Add disassembly process for motor (P.84) and impeller (P.85).	Oct 1, 2012
1.0	Initial version.	Sep 7, 2012